NATIONAL PETROLEUM NEWS

Fast Growing Air Traffic Brings Need For Quick Fueling Methods

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND, July 7

AIR travel is growing at a faster rate than automobile travel was growing a quarter of a century ago. This assertion is made after talking with officials of the Cleveland municipal airport and the Ford airport at Detroit.

It is estimated that airplanes in the United States will fly a total of 75,000,000 miles in 1928. This distance is equivalent to 3000 trips around the world.

Although aeronautical engineers will not predict the airplane will undergo a development in the next quarter century like the development of the automobile in the last 25 years, they do predict that the airplane will become just as thoroughly welded to our business and social life as the automobile has become.

The new speed in transportation is bringing new problems in servicing it. Airports are trying out several methods of fueling airplanes and supplying the things that are necessities with aircraft as they are with automobiles, such as oil and air, and some water.

Until a year or so ago, most of the servicing was done with improvised equipment. Several systems of fueling have appeared on the market but airport officials are yet undecided whether they should use stationary or mobile equipment. So far they have been able to handle the requirements of air liner and casual trade with little delay but the growing volume of traffic is causing them to give more thought to the gasoline and oil service question. All are seeking quicker service.

Just how extensive is this "growing air traffic"? In June 1480 airplanes arrived at or departed from the Cleveland airport which is said to be one of the busiest in the world. This was an average of almost 50 planes a day.

There are five mail routes leading from the Cleveland port. There is an exclusively passenger line. The Ford Motor Co. has a private freight line, at least one plane of which arrives each week day from Detroit. There are several taxi services located at the Cleveland port and the state of Ohio has just installed $300,000 equipment there for use of the air branch of the Ohio National Guard.

The Cleveland port was established three years ago and the first year 4000 planes arrived at or cleared from it. In 1926 the traffic totaled approximately 11,000 and last year 16,800. In the three years, 6,600,000 pounds of freight have been handled by air through the port and 4,900,000 pounds of mail.

There are no available figures on the number of passengers carried by the planes. But the Stout Air Services, Inc., has kept such figures for the Stout planes operated out of the Ford airport at Detroit.

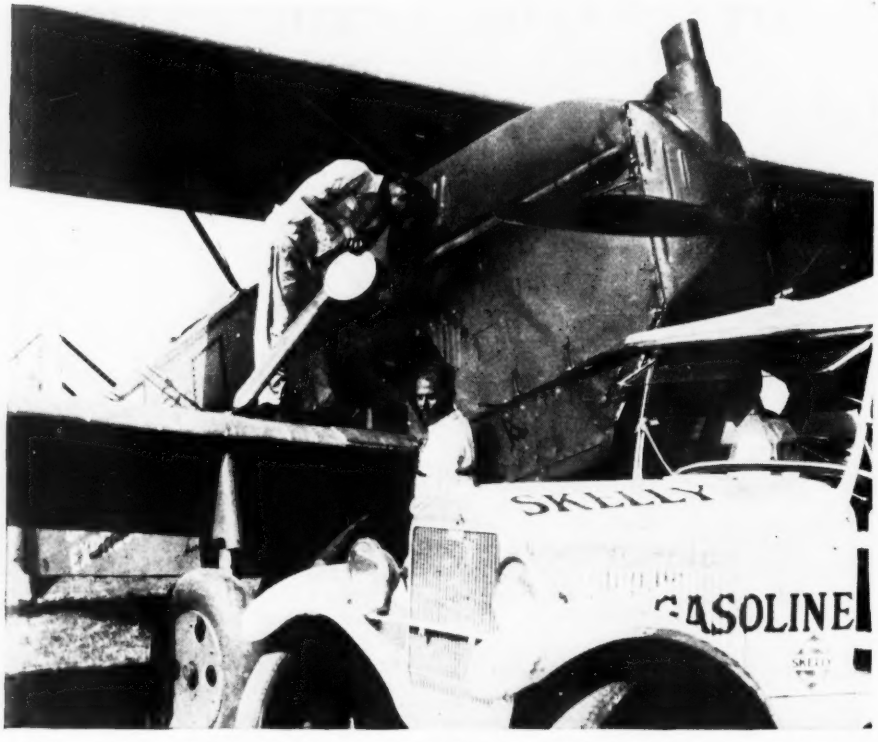
Last year Stout planes handled 19,005 passengers at Detroit, Stanley Knauss, in charge of the Detroit terminal said. In the first half of 1928 Stout planes handled 19,104 passengers. This was 99 more in a half of 1928 as in all of 1927. And the best half year is ahead.

Arrivals and departures from the Ford airport average about 20 ships a day, but no record is kept of the privately owned planes that put into the port each day, such as is kept at the municipal port at Cleveland.

Mobile airplane service unit used at Buffalo airport

Detroit contemplates a city owned landing station but so far planes visiting the city have had to use the excellent facilities afforded by Henry Ford.

The D. A. McIntyre airport at Tulsa averages about eight ships a day, transient, calling at the field. There are 31 privately owned ships which are kept in the hangars at the McIntyre airport. McIntyre owns five or six ships, which are in constant service.



Fueling with a bucket the ship that carried the first air mail from Tulsa July 5. This was a slow process and airport officials everywhere are seeking speedier methods

Gasoline sold at the airport averages about 8,000 gallons a month. He sells about two barrels of oil a week.

The following data have been gathered from both government and private sources:

The first of this year there were 12,517 miles of commercial and mail air routes on which daily flying averaged 27,986 miles. There were 7571 miles of improved airways, routes chartered and lighted. Mail routes covered 7763 miles, and express and passenger routes 7265 miles. There were 30 commercial airlines. Licensed pilots and pending flying licenses totaled 3548, mechanics 2655, and airplanes 2674. Civilian owned planes exceeded 4000.

The number has since grown. The bureau of aeronautics, U. S. Department of Commerce, gives these totals for March 15: Airlines 34, airway mileage 14,279 and scheduled daily airplane mileage 32,671.

At the end of 1926 there were only 1342 licensed commercial airplanes in the United States, of which 494 were engaged in carrying mail. It is estimated there were about 2500 obsolete army planes that were being used for exhibition, pleasure and other flying.

The Army by 1931, under the present airplane program, will have 1600 planes and the Navy 1000.

Air mail routes and commercial lines now extend from the Atlantic to the Pacific and from the northern to the southern border. There is now air routes totaled 5,870,489. Mileage a transcontinental railway-airplane service in which the passenger sleeps in a Pullman at night and flies during the day.

The bureau of aeronautics in a bulletin dated March 15, has this to say of civil flying:

"America today is doing a prodigious amount of civil flying. A great transcontinental system of air mail, express, and passenger service, rapidly growing, has been in actual operation for two years; air service operators are flourishing in hundreds of cities; executives are flying their own airplanes in the conduct of daily business; more than 1000 airports are in existence, and the manufacturing industry is behind on its orders.

"These flying activities may be divided into three general classes: Air transport, or scheduled traffic, over regular routes (mail, express and passenger); air service operations such as taxi service, crop dusting, photography, over-city flights, tours and others; and private, including pleasure aviation and the business travel of executives. The number of business men using airplanes is rapidly growing."

In 1927 miles flown on scheduled reported by "air service" operators was 7,998,240, and the bureau estimates 10,748,400 additional miles were flown in the "air service" classification, making a grand total of 18,746,-640 miles. The total of scheduled civil flying and air service was 24,-617,129 miles. The amount of Army Air Corps, naval and private flying is not included in this total, but probably equaled or exceeded it. It is reasonable to say at least 50,000,000 miles were flown in this country last year.

At the end of 1927 there were 1047 municipal, commercial, or private airports, army and navy stations, Department of Commerce intermediate fields, and other marked auxiliary fields. Airports were under discussion in 325 cities.

Each of these airports must have gasoline and oil service and many oil companies are awakening to the fact that a good premium business may be had in servicing the rapidly growing air traffic. Of course, gasoline and oil used at army and navy aircraft bases are bought in carload lots on contracts granted after competitive bidding. Government airports do not offer the oil marketer an outlet.

The Ford airport management buys aviation gasoline from the Standard Oil Co. of Indiana in tank wagon lots and is the sole dispenser of aircraft fuel at the port. At the Cleveland port gasoline may be bought from half a dozen aviation companies who have hangars there. Much of the gasoline at the Cleveland port is bought from the Standard of Ohio which delivers by tank truck. However, some business is done by Independent companies.

With the growing traffic gasoline probably will be shipped in tank cars to points at or near the airports. Shipments to government stations is usually by tank car.

Airport business has a value even greater than selling aviation gasoline. It is good advertising. Thousands of motorists visit each airport to satisfy their curiosity and interest in aviation. It is not uncommon for 25,000 or 30,000 persons to visit the Cleveland airport each Sunday, for example. At least a quarter of these visitors are gasoline and oil buyers. If they see the airplanes fueled with a certain brand of gasoline and oil it is natural for them to believe that that brand of gasoline or oil would be good for their cars.

Like motorists, aviators are requiring more speed in the fueling and oiling of their craft. Before Lindbergh hopped to Europe last year, the Spirit of St. Louis was fueled with 5-gallon milk cans. It required three hours to supply it with enough gasoline to carry the Lone Eagle to Paris. No flivver that was parked around the flying field at Mineola, L. I., that memorable morning had been fueled in so crude a fashion.

All fueling at Cleveland is done from stationary equipment. At the Ford port both stationary and mobile equipment is used. A truck with rotary pump driven from the front end of the engine fuels most of the planes. This is because the stationary equipment is improvised and time is lost in taxiing a plane to two outlets that have been built at one side of the field away from the terminal building.

The gasoline dispensed from the truck passes through a meter installed in what corresponds to the can box of an ordinary tank truck. Control is from the nozzle end of the long hose. This is necessary because all gasoline is delivered into a large funnel in which is a chamois strainer. If the man at the nozzle could not control the flow it might mean a dangerous slopover.

The Heil Co., Milwaukee, last year developed a mobile service unit for the Buffalo, N. Y., airport. An electrically welded 300-gallon four-compartment steel tank was mounted on a 2-ton Graham chassis. The forward two compartments of 150 and 100 gallons' capacity, respectively, were for gasoline. The rear two compartments of 25 gallons' capacity each, were for lubricating oils but in practice one of the small compartments was used for water.

The service unit may be driven to any part of the field. Gasoline is unloaded with a rotary pump, driven through a power take-off from the truck's engine. The gasoline is metered. The lubricating oil is drawn off into buckets or measures for serving the plane. The truck has space on what is usually called the can rack for air bottles for inflating tires, or cans of water.

The gasoline filler and outlet of the unit are fitted with 100-mesh screen to trap any dirt that may have gotten into the gasoline. The outlet piping and hose are 1½ inches in diameter.

The Buffalo airport service of gasoline averaged 100 gallons in five minutes which is a saving for this volume of service of 25 minutes over the old bucketing system.

S. F. Bowser & Co., Fort Wayne, Ind., put on the market a few months ago two stationary units for servicing aircraft at airports. One unit supplies only gasoline but another unit supplies gasoline, oil, water and air.

The Bowser units consist of an underground storage tank for gasoline, an electrically driven rotary pump with air release valve, and rotary filter and moisture remover in the hangar or oil house, and service and control lines to a water tight metal box which is sunk on the flying field.

In the solely gasoline unit there are two doors which are almost flush with the ground. Under one is a reel with 50 feet of metal hose with self-closing nozzle on the end. Under the other lid is a meter for measuring the gasoline, a supply line valve and remote electric control switch.

In the complete unit there are three doors almost flush with the ground. In one compartment is the gasoline hose and reel; in another an air hose and reel and in the third, meters for gasoline and oil, and water hose on a reel, and oil hose and reel.

The hoses are 50 feet long so planes may be served anywhere in a circle 100 feet in diameter which has the service box as a center.

When the fueling pit is closed a plane may taxi over it without danger. The ground is sloped up to the pit so that surface water will drain away from it.

In installations of this sort that provide lubricating oil service it has been found best to put the oil line well below the frost line so oil that remains in the line will not congeal in winter.

Tulsa Gets Air Mail with New Flying Field

TULSA, July 7

THE aviation enthusiasts of Tulsa —and who is not?—turned out in force July 3 to welcome the 24 ships in this year's National Air Tour.

Arriving from Wichita, Kans., that morning, the contestants inaugurated a three-day air festival in Tulsa. Their arrival signalized the opening of a municipal airport, northeast of the city. The following day, the ships and the fliers were on inspection before another large crowd and July 5 they left for Fort Worth.

On the latter day, dedication ceremonies were held at the new airport, with various local celebrities taking turns telling the populace that aviation has "arrived," a fact self evident for a long while.

Of more importance to the oil industry of the Mid-Continent than the National Air Tour was the beginning July 5 of air mail service from Tulsa. This city has been neglected overlong by the high gods who say who shall and who shall not send mail through the air. At last the day arrived. Each evening a ship leaves Tulsa for Ponca City, 100 miles northwest, delivering the Tulsa mail to the north flying ship on the Kansas City-Dallas air mail route.

Mail posted in Tulsa by 5:45 p. m. will reach Chicago by 7 a. m. the next day; Cleveland, O., 11 a. m. the next day; New York, 7 p. m. the next day. It will reach Denver at 6:55 a. m. the second day; Los Angeles 5:25 p. m. the second day.

The air tour visitors remarked upon the prevalence of aircraft in Tulsa. Aviation has been used by oil companies, drilling contractors and supply companies for several years and with increasing vigor. The D. A. McIntyre airport, for instance, has for some time averaged eight transient ships per day landing on the field. At this airport are serviced and lodged regularly 31 privately owned ships. The several ships owned by McIntyre are in nearly constant service. Oil men fly to many of the fields in the Mid-Continent and west Texas; supply men call on customers located some distance from Tulsa or send their service men to distant points to iron out troubles with equipment.

Interest in flying in Tulsa, Wichita and several other cities of the southwest, is red hot. Tulsa now has a thoroughgoing airplane factory. The

A party of "air minded" Tulsans. Left to right, J. S. Freeman, F. T. Hopp, J. F. Nagle, R. R. Stamper, R. E. Holcomb and A. F. Winn, all of the Skelly Oil Co. and A. F. Mazzon, Sun Oil Co.

Spartan Aircraft Corp., of which William Grove Skelly, president of the Skelly Oil Co. is chairman of the directorate, is now putting up a new plant near the municipal airport. It will leave its present factory, which has proved too small.

There appears to be some affinity between producing oil and making airplanes. Besides Mr. Skelly, two other well known oil men are active in the conduct of an airplane factory. Stearns & Streeter, of Wichita, producers, own a substantial part of the stock of the Travelair Co., of Wichita.

Several oil companies were prominent in this year's National Air Tour. The Texas Co.'s entry, the giant trimotored Ford monoplone which has been carrying officials of the company all over the United States for months, is among the leaders thus far. Barnsdall Corp. is sponsoring the flight of a Stinson-Detroiter plane, belonging to the McIntyre airport. The Texas-Pacific Coal & Oil Co. is flying a Ryan Brougham. Erle P. Halliburton Co., cementing contractor, Duncan, Okla., entered its Lockheed ship.

Several fliers whose names have rung 'round the world were present in the flesh when the tour ships reached Tulsa. Edward A. Stinson, who is today the dean of them all, crawled out of one of his own products. He was one of that little band of daredevils years ago, who flew the county fairs on frail contraptions that were not good for much distance. He taught the army to fly during the war and now devotes his time to making the Stinson-Detroiter monoplanes.

W. G. Skelly, president of the Skelly Oil Co., the Tulsa Chamber of Commerce, and the International Petroleum Exposition and Chairman of the Board of the Spartan Aircraft Corp., was busy welcoming the touring fliers in his various capacities. He beamed with pride at the new municipal airport which came into being partly as a result of his efforts

Also on the tour was Capt. George Haldeman, flying a Bellanca. He is the pilot who did his best to help Ruth Elder to the honor of being the first woman to cross the Atlantic. His disappointment was so great that all he could do when he got back was to go out with Stinson and set a new endurance record.

Another well known pair that landed in Tulsa were E. F. Schlee and W. S. Brock, of Detroit, who started on a round-the-world tour, made it to Japan and there stopped because of the importunities of government officials and relatives. They are associated in the Schlee-Brock Aircraft Corp. distributors of Bellanca planes.

Air Liner Cuts Four-Hour 45-Minute Train Trip to Hour and Half

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND AIRPORT, July 7 IT IS 6:15 p.m. We, myself and 12 other passengers, have just landed from a trip of an hour and a half from Detroit. We came in a Ford tri-motored plane.

The train that left Detroit 45 minutes ahead of us will not reach Cleveland for two hours and a half. We have made the trip in less than one third the time of the best train. We had a comfortable time. There were no cinders or dust. Our collars are still starched although the mercury stood at 92 when we left Detroit late this afternoon.

That is a skeleton log of travel on a modern air liner. It is nothing unusual. It may be duplicated twice each day between Cleveland and the automobile capital. Similar travel may be done on about 15,000 miles of other airways in the United States over which there is regular, scheduled traffic.

See what travel is like on a regularly established airline, was the instruction so we made a round trip over the Stout Air Services line to Detroit.

Saturday morning traffic is usually the lightest of the week, we were told when we bought our ticket. And this proved true because there were only three passengers while the average per trip is about nine, we were told. The Ford planes accommodate 14 passengers.

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The sky is clear and the sun bright as we take off in a light breeze from the Cleveland port. The landscape is a study of carpets cut in geometrical figures. There are squares of dark green Brussels; rectangles of bright green Wiltons; parallelograms of yellow green chenilles, and trapezoids of taupe velvets.

Here and there run the light gray lines of concrete highways, the dark gray lines of asphalt, and the maroon of brick. We quickly overtake a New York-Chicago limited. The mail that left New York by air three hours after this train is now in Omaha, Neb. Yet this train is barely a third across Ohio.

Off to our right lies Lake Erie and on its shore Lorain. To our left is Elyria and just below the red upright tanks of a bulk gasoline and oil station are visible.

We are now 4500 feet above the ground and except for the roar of the three propellers and a slight vibration we might think as we lounge in a wicker chair that we are gazing at the sky from the deck of an anchored ship. We seem suspended in space.

This is a calm day but even in a wind the action of the giant plane is only like the movement of a ship on the water, the transportation company warned in a circular it gave each passenger before embarking. The heavy paper bags available indicate that something akin to seasickness might be expected in rough weather.

Today all is fair sailing. One of the passengers, a lawyer from West Virginia, reads an early edition of an afternoon newspaper, a copy of which was supplied each passenger.

Off to the right are the summer resorts of Vermilion. Farther toward the horizon the iron ore docks at Huron can be seen through a haze that is gathering along the lake.

Before one can read the map which each passenger received with his ticket, the Cedar Point resort comes into sight. A few minutes later a tiny light shaft is revealed to be the 300-foot Perry monument at Put-in-Bay. Here a little longer than a century ago wooden warships, powered with canvas and armed with muzzle loading cannon, fought the Battle of Lake Erie. What a change!

Below the peach orchards of the Port Clinton region look like small green headed pins stuck in a cloth

of yellowish brown. To the left are the weathered barracks of the Camp Perry cantonment and a khaki patch which later develops into a tent city which houses the civil guardsmen in summer training. Toward the lake shore stretches the green of the rifle range where each summer the national marksmanship contests are shot.

The relief pilot, A. Z. Gruitch of Detroit, has joined us to explain anything about the craft we wish to know. The pilot, Sam J. Taylor, a veteran of the air—he has had 11 years' experience including service in the Army Air Corps, dips the plane sharply and we leave our seats by many inches. It is his method of playing a joke and we all laugh as soon as our hearts resume their normal positions.

The plane has a wing spread of 70 feet, Gruitch explains. The overall length is about 50 feet. It has three 200 h. p. Wright Whirlwind engines. It has capacity for 210 gallons of gasoline although only 160 gallons are carried on the usual trip. The three engines consume 36 to 40 gallons of gasoline an hour.

The engines are driven at 1600 r.p.m. at half throttle. The maximum r.p.m. is 1800 at full throttle. At 1600 the plane makes about 95 miles an hour although it weighs 5700 pounds and carries a load of 3600 pounds, making a total load of 9300 pounds or 15½ pounds per horsepower. Many planes carry 20 to 25 pounds per horsepower but these passenger liners are allowed an ample margin of safety.

We have now crossed Maumee bay, the entrance to the port of Toledo, and our course has been changed to north. Now we are over Michigan, beyond, through the pilots' cockpit, we see Monroe, a once flourishing Gretna Green and still the Mecca of elopers who hope to evade the state's stricter marriage laws.

Strawboard mills. An emerald pond. Converging railroad lines that indicate we are approaching a metropolis. A railroad yard and a long lane of arches which we know are the trolley wire supports of Henry Ford's railroad.

Below a silvery plane passes bound south. It is a Ford plane which, Gruitch says, is bound for Cleveland with freight and mail.

Taylor wags the plane's tail and Gruitch hastens to the cockpit. We are nearly in. The plane noses downward. The altimeter's needle slowly returns toward zero and our hearing fades. We swallow and we hear better. Once more it fades and we swallow again. It is the heavier air pressure at the lower altitude.

We see a water tower checkerboarded in orange and black. We see another tower in the same paint dress and later learn it is a dirigible mooring mast.

We swoop down close to the ground and then zoom to a height of several hundred feet. It lists to one side and we recall these words from the company's circular, "Take the turns naturally with the plane. Don't try to hold the lower wing up with the muscles of the abdomen—it's unfair to yourself and an unjust criticism of your pilot."

We level out then gently settle to earth.

Bump, bump! Our serenity is shattered. The ground is not so smooth as it appeared when we were three quarters of a mile above it.

The pilot applies the brakes and we gently come to a stop.

The other two passengers hasten to a bus to be whisked into Detroit, but we stay for a visit at the airport.

The Ford port is well groomed. There are two large hangars and the factory of the airplane division of the Ford Motor Co. One all-metal plane is turned out a week.

In a new hangar which opens fully to the flying field is Col. Lindbergh's present plane undergoing an engine overhaul. There is Byrd's plane in which he flew over the North Pole last year and the plane Ed Schlee, late of the Wayco Oil Corp., and Bill Brock flew from Detroit to Tokyo and from San Francisco to Detroit. It is painted yellow like the gasoline pumps at Schlee's service stations which he sold a week ago to the Paragon Refining Co. It is covered with penciled inscriptions. And here's an antique, a tiny Bleriot monoplane, vintage of 1909—a sister to the craft in which the Frenchman made the first air voyage across the English Channel.

Ford's freight ships have only one engine—a Liberty. Three leave Detroit at 10:40 a.m. every day but Sunday. One goes to Cleveland, another to Buffalo, and the third to Chicago. They carry Ford and Lincoln car parts, also mail. They keep the production lines moving when rail freight shipments are delayed. Some days they may carry a cargo of engines or chassis parts. Other days hub caps may be the rush order.

There are perhaps a hundred persons at the field when the Cleveland ship arrives. Early afternoon the crowd swells. Large cars, small cars, taxicabs bring parties who wish to take a tour over Detroit at $5 a trip. The trip lasts 15 to 20 minutes. The crowd gets larger and one plane cannot handle the short flight tourists. A second plane is brought out.

The Cleveland plane has been taken to a hangar. Every part is thoroughly inspected. The locomotives that draw the Twentieth Century are not inspected more carefully. The inspectors have printed forms and put down a mark for each point checked. Nothing is left to memory.

Before the ship is towed to the terminal for the return take-off it is refueled and the oil replenished. Several quarts of oil were consumed by each of the engines on the flight over.

We have more customers going back—13 in all, but there isn't a superstitious one among them. Sammy Taylor is the pilot but he has new relief—a smiling lad who befriends the three women aboard by inquiring if they are comfortable and if anything can be done to make the trip more pleasant.

One of the passengers has a 7 o'clock dinner date in Cleveland, he says, but couldn't get away on an early train. The train that left just ahead of us would get him in too late. An automobile man also is aboard. He has been making two trips a month since passenger service was instituted last year. It saves him much valuable time, he commented.

The other passengers are tourists seeking novelty. They include the West Virginia lawyer and his friend who flew over this morning.

We can't move around like we did this morning but everyone is happy. Baggage is stored back of the cabin in the fuselage. One man finds space enough to take a nap after he has read the afternoon paper the company had in his seat.

Two of the women light their cigarets. Smoking is permitted as the plane is all metal and the gasoline tanks are in the wings. Several of the men take the cue and light up.

It's a little harder taking off with the heavy load. Sammy taxis far down the field before turning into the wind. He opens the throttles and we wonder if he will clear the telephone wires. He does by many feet. We don't climb so fast but we finally reach 3000 feet.

The weather is a little hazy and our vision is greatly limited. We can see to the right the main highways from Detroit to Toledo. What are those tiny objects creeping along that bright line to the west. Automobiles, moving southward along Telegraph road. If we were closer and not traveling so fast ourselves we would see they were scurrying away from the city for a weekend holiday. A flash of brilliant light as we pass through sunbeams reflected from a river 3000 feet below.

We reach the end of the Detroit river and steer over the lake. A shifting breeze reveals an ore boat that had been hidden in its own smoke. A fog of smoke also obscures Toledo.

Slightly above us as we pass Sandusky we see the afternoon plane from Cleveland. Below are two white excursion steamers and minute shadows in the water at Cedar Point probably are parties of bathers.

East of Huron we turn inland. Two deep stone quarries appear only as scars on the surface below us. We sight the college at Oberlin and the white faced bank building at Elyria.

We nose downward as the hangars of the Cleveland port are now visible.

New Q.D.A. Brings Uniform Price Scale in Indiana Territory

CHICAGO, July 9

FOLLOWING a movement started by Independents throughout its territory, Standard Oil Co. of Indiana revised its wholesale Q. D. A. effective July 9. The new scale of discounts is more complicated than the old one and allows less margin to dealers selling under 2000 gallons a month. Otherwise the Q. D. A. is the same.

The dump concession has been abolished, i. e., the practice of discounting the price 1 cent to buyers of 50 gallons or more at one delivery was discontinued. This applies to gasoline and kerosene both but the concession on kerosene was offset by a general 1-cent cut in the posted tank wagon price effective the same date. The retail Q. D. A. is unchanged and the new tank wagon schedule follows:

Monthly Purchases	Discount per Gallon
750 to 1999 gallons	½ cent
2000 to 5999 gallons	1 cent
6000 to 9999 gallons	1½ cents
10,000 to 14,999 gallons	2 cents
15,000 gallons or more	3 cents

Although the above schedule has five brackets (two more than have been observed in any locality for a long time) and is therefore more complicated, it does simplify the price structure generally. It sets aside all exceptions and applies uniformly throughout Standard of Indiana territory, even in the city of Chicago. On July 9 there were so many local exceptions to the application of the old Q. D. A. that its ramifications baffled description.

The official birthday of the quantity discount agreement was July 1, 1925, but by examining page 51 of *National Petroleum News Oil Price Handbook* for 1924 it will be seen that a sliding scale of tank wagon prices went into effect in Chicago as early as March 6, 1924.

That sliding scale was local to Chicago at first and spread gradually to the suburbs. It was an official recognition of a price-cutting orgy that had raged all through the winter of 1923-24. The same set of conditions affected the country as a whole in varying degrees and finally the Standard devised the Q. D. A. and put it in general effect throughout its territory.

But before the original Q. D. A. was made to apply generally over all the 11 states, the old Chicago sliding scale had undergone many revisions and finally simmered down to what everybody called a "dump discount." Customers who bought as much as 100 gallons at a time from tank wagon were given 1 cent off at the time of delivery. It had been going on for nearly a year and the new, formally worded, Q. D. A. did not change it. The Q. D. A. applied everywhere and the 1-cent "dump discount" applied on top of it and in addition to it, in Chicago.

Out over the territory the Q. D. A. had only six brackets, four applying to the tank wagon and two to the service station. Q. D. A. contract holders were supposed to be credit customers and their monthly bills were discounted in proportion to the volume of their monthly purchases. As originally devised the Q. D. A. was as follows:

Purchasers of more than 1000 gallons of gasoline a month from tank wagon were credited ½-cent a gallon; purchasers of more than 2000 gallons received ¾-cent a gallon; purchasers of 3000 gallons and up got 1 cent a gallon, and purchasers of 6000 gallons a month and over got 1½ cents. But this schedule did not have long to remain in its original form.

Competition first forced a change in the lowest bracket and the 1000-gallon requirement slid down to 750 gallons a month in a few days. After a few weeks a fifth bracket was added to the tank wagon scale so that purchasers of 10,000 gallons a month could enjoy a discount of 2 cents a gallon.

The retail Q. D. A. also underwent some changes. It started out as a 1-cent refund to consumers of 300 gallons a month or more and a refund of 2 cents to consumers of 600 gallons a month or more. But that did not last. It finally boiled down to a discount of 2 cents a gallon to all service station customers buying more than 200 gallons a month. And that is where it stands today.

Most of the changes and revisions have been in the tank wagon scale of discounts. During most of the three years it was used, the wholesale, published Q. D. A. had six brackets, as follows:

Monthly Purchases	Discount per Gallon
750 to 1999 gallons	½ cent
2000 to 2999 gallons	¾ cent
3000 to 5999 gallons	1 cent
6000 to 9999 gallons	1½ cents
10,000 to 14,999 gallons	2 cents
15,000 gallons or more	3 cents

Probably no single thing ever gave rise to as much violent conversation among oil marketers as did the above schedule of discounts. For the most part it existed on paper only, for it was attacked from various quarters and local alterations were made to meet varying conditions.

First the Department of Markets of Wisconsin started a legislative and legal fight against it and managed to have the retail feature of it set aside within the borders of the state for a while.

Farmers cooperative oil companies began to be organized, stimulated by the wide margins which retail dealers enjoyed. Cut prices to farmers began to develop in various quarters and on Jan. 19, 1927 Standard of Indiana waived the first three brackets of the Q. D. A. entirely. In their place they instituted a "dump discount" of 1 cent all over the territory.

Since then everybody who bought gasoline from tank trucks in the middle west have been able to get 1 cent per gallon discount at the time of delivery provided they would accept as much as 50 gallons at once. That has applied everywhere except in Chicago since Jan. 19, 1927.

Among the most important exceptions to the uniform application of the Q. D. A. developed in Kansas as a result of a competitive situation. The 50-gallon dump discount of 1 cent there was applied in addition to the published Q. D. A. discounts. It was treated exactly as the 100-gallon dump discount in Chicago was from the start.

The two "dump discounts" then began to cause confusion. The 1-cent cut for 50-gallon dumps in the country was instead of the first three brackets of the Q. D. A., while the 1-cent cut for 100-gallon dumps in Chicago and Kansas were in addition to the Q. D. A.

The last bracket of the scale (both in the old and new scales) is the youngest feature of it. Standard began giving a discount of 3 cents a gallon to users of 15,000 gallons or more a month on March 1, 1927. That made it possible all through the motoring season of last year for resale agents to enjoy a spread of 5 cents a gallon. In Chicago they could have a gross spread of 6 cents because the "dump discount" was in addition to the Q. D. A. here. It is true that some of them got 7 cents but possibly not from the Standard.

This complicated price schedule never showed any signs of getting better until May 8, 1928. Group 3 prices of gasoline in tank cars rose uncomfortably close to the minimum tank wagon price in Chicago, which was 10 cents a gallon. Nobody could make any money buying gasoline in Oklahoma and selling it Chicago and paying freight. So on May 8 the first upward revision of the Q. D. A. came about.

It was then that all the major operators in Chicago, including the Standard of Indiana, abolished the 1-cent discount to tank wagon buyers of 100 gallons or more at one dump. Thus the Chicago "dump discount" passed away and the Q. D. A. schedule nominally existed here just as it appears in foregoing table No. 2.

However, the official existence of

(*Continued on Page* 24)

New York Mayor Says He's Against Tank Monopoly but Delay Continues

NEW YORK, July 6

ALTHOUGH Mayor Jimmy Walker has publicly declared he favors breaking the monopoly that exists in the sale of truck tanks for gasoline deliveries in New York City, his bureau chiefs continue to split hairs over details of all but one make of tank which is distributed here by William F. Kenny, a Tammany Hall politician and financial backer of Gov. Al Smith in his presidential campaign.

"Hasn't that tank been approved!" a New York fire insurance man exclaimed to a NATIONAL PETROLEUM NEWS man this week when told that one tank had been rejected following a test which the maker had finally cudgeled city officials to make.

"I don't believe I have ever seen a tank put through so severe a test as that one," this insurance man added. "It was wonderful, the things it stood."

But this tank had not won approval this week although the test was made several weeks ago. And why? There were two minor details in which the tank did not meet to the precise letter the requirements of the New York code.

One detail was that the tank had double bulkheads, a much favored type of construction and recommended in the tentative code of good practices for the construction of tank trucks by the National Fire Protection Association when adjoining compartments of a truck tank are filled with different liquids. The New York specifications call for only one partition between compartments.

The other detail was that the bulkheads did not extend beyond the shell. The bulkheads of this tank were welded flush with the shell like almost all the tank trucks in use in the rest of the country.

This manufacturer has retained a Tammany lawyer and congressman and hopes to get a reasonable interpretation of the New York code and approval for his tank.

"The best way for tank manufacturers to get their tanks into New York is to submit blueprints which we will check to see if the tanks conform to our specifications," Peter Spence, chief of the Bureau of Fire Prevention of New York, told NATIONAL PETROLEUM NEWS. "If anything is wrong we will tell the manufacturer. If everything conforms with the specifications the manufacturer can ship a tank here and we will test it. But we can't keep a force of men doing nothing but testing tanks as some of the manufacturers seem to think.

"New York must have stronger tanks than other cities. The situation here is different. The fire hazard is greater. There are trolley wires under the streets. There are the subways with the ventilators on the surface. In some places there are tracks two and three tiers under the street. There are the conduits of the telephone, telegraph and electric power companies into which explosive vapors may seep. The elevated railway structures increase the danger of collisions.

"It's our duty to see that conditions that might result in a disastrous explosion, are not created. No politics are involved."

No one questions the sincerity of Chief Spence but the sincerity of some of his superiors in the Walker administration and in the Hylan administration before Walker is doubted by many persons who are familiar with the tank situation here.

Shells of tanks used in New York must not be less than 3/16-inch thick. This is 0.1875 inch. For 1500-gallon tanks the N. F. P. A. tentative recommendation is No. 10 gauge steel which is 0.14625-inch thick. The New York shell must be about 25 per cent thicker than the shell used elsewhere in the country.

New York requires a three-point suspension for tanks on the trucks. The National Fire Protection Association does not specify the number of points of suspension.

There can be only one discharge line and the hose must be permanently connected to this line. Bumpers, front and rear, must be of 6-inch channel iron weighing not less than 10½ pounds to the foot.

Tank compartments may be not larger than 250 gallons and maximum capacity of tank 1500 gallons. The shell may not be punctured below the normal liquid line.

In proposed specifications submitted by a committee of oil companies and tank manufacturers in 1925 before the New York code was adopted, the maximum tank capacity was set at 1800 gallons, and compartments at 400 gallons. No. 12 gauge steel would have been permitted for tanks having a capacity of not more than 750 gallons and No. 10 gauge for tanks from 750 to 1800 gallons capacity. Gravity feed was provided with safety emergency valves in all outlet lines.

These specifications were favored by these oil companies: Gulf Refining Co., Pure Oil Co., Sinclair Refining Co., Standard Oil Co. of New York, Sun Oil Co., The Texas Co., Tide Water Oil Co., and Transcontinental Oil Co.

These tank manufacturers approved the specifications: Davis Welding & Mfg. Co., the Heil Co., Quaker City Iron Works, Richmond Engineering Co., Robinson Boiler Works, and Smith, Hamburg & Scott Welding Co.

Few of the recommendations of the oil company-tank manufacturer committee were adopted, although the committee recommended stronger tanks and more safeguards than are recommended in the tentative N. F. P. A. code.

After the New York specifications were published, manufacturers rushed construction of tanks which they thought were suitable for New York service but when their tanks reached New York there was delay after delay in getting tests and all except the tanks of one company were turned down.

The dilatory tactics of the New York officials became so bad that the large oil companies prevailed upon the American Petroleum Institute to break from its traditional policy of not mixing in local affairs to urge more speed upon the city officials and point out to the city that the oil companies were not asking changes in the code but wanted to buy their

Standard of Ohio Officer Quits After 51 Years

CLEVELAND, July 9.—W. H. Foster, first vice president of the Standard Oil Co. of Ohio, has resigned that position after 51 years of continuous service with the company. Mr. Foster was head of the refining department.

A. J. Millns, who has been with the company 44 years and for the past five years has been head of the marketing department, was elected first vice president. Howard G. Jones, treasurer of the company, was elected a director succeeding Mr. Foster.

J. S. Harrison, who came to the Standard of Ohio two years ago to take charge of a refinery construction program, has been appointed head of the refining department. Mr. Harrison before coming to the Standard of Ohio had 18 years of experience with the Standard of New Jersey, serving that company in Louisiana, Mexico and South America.

equipment on a competitive basis as they had been accustomed to buy it.

William R. Boyd, Jr., assistant general secretary and counsel of the A. P. I., wrote Thomas J. Drennan, then fire commissioner, a letter in which he set forth the oil companies' attitude thus:

"We do not believe the oil companies affected by the ordinance and by the specifications referred to, feel that any necessity exists for changing to some new and differently constructed tank and truck; however, we do believe that these oil companies would prefer to use and test out tanks and trucks built according to the present municipal specifications rather than to engage in any controversy or to become responsible or be charged with the responsibility for any delay in changing from the drum to the tank truck method in delivering gasoline, etc., within the city."

The A. P. I. received a reply defending the specifications and Mr. Boyd wrote another letter to the fire commissioner again calling his attention to the fact that the oil companies were not asking for a change in the specifications but wished to buy their equipment on a competitive basis and not be forced to buy from only one tank distributor.

This distributor's price was considered exorbitant and some companies refused to turn to tank truck deliveries.

One company was approached with a proposal that it get the tanks and deliver on a royalty basis. The royalty was to have been 2 cents a gallon. Supposing a 1500-gallon truck made three deliveries a day, this would have been $90 a day royalty.

The price of the tanks was later lowered until the average price now is said to be around $3200 each, or $1500 to $2000 more than what some manufacturers are willing to market their products for.

There has been a rumor for some time in oil circles in New York that a delegation of Chicago politicians this year was looking into the New York tank situation with an idea of putting in similar specifications in Chicago. However, no one could be found who had seen the delegation or knew definitely that it had been to New York.

One insurance man said he thought it would be wise for the tank manufacturers to get together and decide on what a good tank should be. There has been opposition from the manufacturers to the tentative N. F. P. A. code. This opposition has resulted in the recommended code going over a year without definite action. It was tentatively adopted at the N. F. P. A. convention in May, 1927, and ordinarily would have been finally adopted last May but action was postponed when no agreement on certain points could be reached.

Coming Meetings

Michigan Oil Men's Association, Detroit, Mich., July 26, 27.

Ohio Petroleum Marketers Association, Commodore Perry Hotel, Toledo, O., Sept. 5, 6, 7.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., Sept. 19, 20, 21.

North American Gasoline Tax Conference, Peabody Hotel, Memphis, Tenn., Oct. 1, 2, 3.

National Safety Council, Petroleum Section, Hotel Pennsylvania, New York City, Oct. 1 to 5.

American Oil Men's Association, Hotel Statler, Detroit, Mich., Oct. 9, 10, 11.

International Petroleum Exposition, Tulsa, Oct. 20 to 29.

Petroleum Refiners Division, National Association of Credit Men, Chicago, Nov. 4, 5, 6.

American Petroleum Institute, Stevens Hotel, Chicago, Dec. 4, 5, 6.

Hickok Oil Corp. Buys 76 Stations in Detroit

TOLEDO, July 10.—Hickok Oil Corp., Toledo, formerly the Hickok Producing Co., has bought the Wilson Bros. Oil Co. and United Oil & Refining Co. of Detroit. These two companies had two bulk plants and 76 service stations in Detroit. Hickok now has more than 400 service stations in Ohio and Michigan, A. S. Close, general manager, said.

* * *

Hickok Buys Interest In Pocahontas Oil

CLEVELAND, July 9.—A minority interest in the Pocahontas Oil Co. of Cleveland has been sold to the Hickok Oil Corp. of Toledo. T. E. Minshall and Douglas S. Campbell, majority stockholders, remain in charge of Pocahontas which has 60 service stations, several greasing palaces and a bulk plant in greater Cleveland.

Pocahontas will continue to sell Blue Flash and Blue Flash Ethyl gasolines and distribute Veedol and Pennalene motor oils, it was announced.

When present gasoline contracts expire, Pocahontas will be supplied with motor fuel by the Hickok corporation which recently bought and will rebuild the plant of the Great Lakes Refining Co. at Toledo. Hickok owns an interest in the Gyro process of making anti-knock gasoline.

New Q.D.A. Changes By S. O. Indiana

(*Continued from Page* 22)

that table of discounts was only on paper. Persons in close touch with the marketing situation in Chicago say there is probably not one dealer in town who operates on less than a 3-cent margin—whether he sells much or little. But the maximum dealer's spread has shrunk from 7 to 5 cents a gallon this spring.

Between May 8 and July 9, 1928, the Q. D. A. in Chicago and out of Chicago were nearly the same thing in practice. They had some differences on paper but even those discrepancies were unimportant. This led up to the development on July 9 when the Q. D. A. was made the same again all over the territory—just as it appears in table No. 1, herewith.

The popular belief among oil men in Chicago is that changes in the Q. D. A. will come thick and fast for a while. Possibly the wish is father of the thought, but the Standard certainly has the thing in shape now where changes can be made all over the territory at once with uniformity and dispatch.

* * *

Champlin Cuts Out Retail Q.D.A. in Kansas

CHICAGO, July 6.—Champlin Refining Co., Enid, Okla., is now numbered among the oil companies that have cut out the retail quantity discount agreement, at least in certain localities. The company's manager in Hutchinson, Kans., recently posted a price of 15 cents a gallon for gasoline at all stations, with no discounts whatever.

It has been announced that the new arrangement is a permanent one. It was brought about by the sundry price schedules and secret marketing arrangements in the community, according to a recent bulletin issued by the Kansas Oil Men's association.

New England Outing July 11

BOSTON, July 9.—Independent Oil Men's Association of New England will hold its annual field day in conjunction with its regular monthly meeting July 11 at the Wollaston Golf Club, Wollaston, Mass. Golfers will have a chance to strut their stuff in the morning. A luncheon at 12:30 will be followed by a short business session and the remainder of the day will be devoted to sporting events, including the usual fat men's race.

Well Producing 33 Gravity Oil Proves Another Los Angeles Basin Field

By William E. Green
N. P. N. STAFF WRITER

LOS ANGELES, July 7

ANOTHER new oil field in Los Angeles Basin was proved this week when San Clemente Oil Co.'s Peck 1 started producing oil from a total depth of 5814 feet from about 40 feet of oil sand.

The oil is 33 gravity, 15 per cent paraffin, and is clean. The production on Friday was about 150 barrels, flowing into a 2000-barrel tank, with a fair gas pressure and 100 pounds pressure on the tubing, which is hanging at 4700 feet with a packer at the bottom of the string.

The new well is located about 3½ miles directly north of the Torrance field, and 4½ miles directly west of Rosecrans. The new Potrero field is about 4 miles northeast of the San Clemente well, while the Dominguez field is about 7 miles slightly south of east.

The map accompanying shows the locations of the new well with reference to the Standard refinery at El Segundo on the Pacific, and it will be noted that a number of wells have been drilled in the past several years in the general area, but no abandoned hole is within a mile of the new producer.

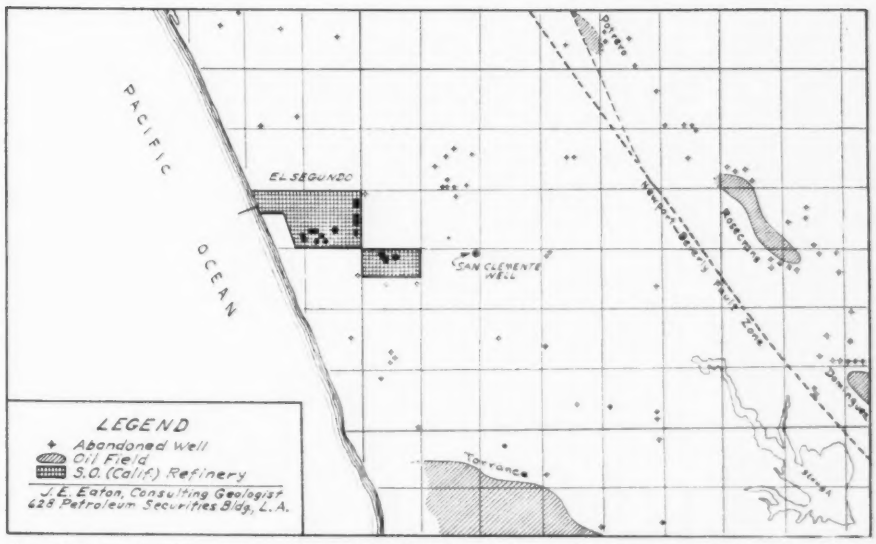
This discovery by the San Clemente company in western Los Angeles basin is of peculiar interest to geologists for the reason that the oil is coming from sands of middle Miocene age, and is therefore considerably older than that produced in most of the major fields.

The highest oil horizons in Los Angeles Basin are basal sands in the Pico formation (upper Pliocene).

The principal production in most fields comes from the Santa Paula formation (lower Pliocene) and the Santa Margarita formation (upper Miocene).

Prior to the discovery in the San Clemente well, the older rocks of Monterey (middle and lower Miocene) age had furnished oil only in fields on the extreme eastern side of the basin.

Practically all of the section directly northeast of the San Clemente well, which is known as Hawthorne, is laid out in townlots as is the section directly to the southeast which is called Lawndale. It is likely the new field will carry the name Hawthorne. On the accompanying map will be noted a cluster of abandoned holes about one



Map showing location of San Clemente well with relation to El Segundo refinery, other fields and dry holes

mile northwest of the new well, every one of which showed considerable gas and some traces of oil, but no commercial producer was made of any well.

Much of the surrounding country is very sandy with dunes near the new well.

Due to the location of the discovery so near two townsites, it is expected several wells will be started in the near future. At this time, none of the major companies are looking upon the area with especial favor, but smaller operators are expected to take on leases.

Those who have watched the operation of the San Clemente from the time the hole was started were not very optimistic, and at this time practically no one is willing to predict that the new field will have any material effect on the production trend in the state, at least for some to come.

Attention was also drawn during the week to Ventura Avenue where M. K. T. Oil Co.'s Foster 1 was completed early in the week for 2000 barrels of oil, plus about 6 per cent emulsion and about 500 barrels of free water, the well extending the field some 600 feet to the south.

The new well is located near the Orton lease held by the Petroleum Securities Co., a Doheny organization, and it proved up the entire tract, a portion of which was thought to be unproductive. Petroleum Securities late in the week made two locations on the portion of the Orton lease proved by the new producer.

This well was drilled to 5736 feet, after topping the upper oil sand at 4881 feet. It is producing 26 gravity oil in addition to 1,500,000 cubic feet of gas. This well was placed on a production test last May and made 1000 barrels of oil, but the water shutoff was imperfect and the casing had to be recemented.

The best well in California the past week was credited to Petroleum Securities when Orton 6 was completed at Ventura Avenue for 5200 barrels of 29 gravity oil with bottom of hole at 6863 feet. This is the lease that was not looked upon with much favor last year when the company started drilling, as it is largely located in the bed of a creek. Orton 7 is also nearing completion and should be completed next week at about the same depth.

Statisticians are wondering this week if they must change their figures on the expected Long Beach production peak, as during the past week eight new wells were completed with an average initial production of 1900 barrels to the well.

As the natural decline at Long Beach is around 9000 barrels daily each week, the week's new producers will boost the production past the 200,000 mark. Shell Co. completed

Patton-Wilson 6 and 7 for 1400 and 1950 barrels, respectively.

Both wells were producing pipe line oil with gravity around 27 to 28. George F. Getty's No. 22 came in at 7311 feet for 3400 barrels, easily taking the honors for the best well of the week. Miley's Mills 8 staged a serious gas blowout at 3500 feet and it is expected the hole will have to be plugged and the rig skidded. The blowout was brought under control after an hour's hard work.

There were no developments worth mentioning in any of the older fields, during the week. Triple A Investment Co. cored 42 feet of good looking oil sand starting at 2488 feet in the old Bardsdale area near Oakridge in Ventura county. Company is drilling ahead in a search for more oil sand. Other wildcats were drilling ahead with lots of optimism and little visible results.

Richfield to Increase Capital Stock

LOS ANGELES, July 7.—Directors of the Richfield Oil Co. July 5 called a special stockholders' meeting for July 20 to authorize an increase in common stock from 2,000,000 to 5,000,000 shares with a par value of $25 a share. A portion of the new stock will be used to exchange for outstanding Pan American Western B stock and the remainder for future expansion.

At a meeting of the stockholders of the Pan American Western July 6 the following directors were selected: J. A. Talbot, C. M. Fuller, Joe Toplitzky, S. M. Haskins, Carey S. Hill, R. I. Rogers, George Newberger, Fred W. Flint, Jr., J. W. Henderson, Nion R. Tucker, and Thomas W Streeter. Two of the directors named represent the Doheny interests.

The directors immediately elected the following officers: J. A. Talbot, president; John McKeon, C. M. Fuller, J. S. Wallace and Graham Youngs, vice-presidents; R. W. McKee, secretary and treasurer; R. M. Sands, assistant secretary, and John Mooney and A. L. Stamler, assistant secretaries and assistant treasurers.

The list of directors and officers is virtually the same list selected at a special meeting of the Pan American stockholders June 25.

At neither of these meetings was any mention made of the terms under which Richfield stock will be exchanged for Pan American Western B stock, but an announcement is expected within two or three weeks.

The directors and officers as selected will serve pending the complete turnover of all Pan American properties to the Richfield. Richfield has taken almost complete control of all the business of the Pan American and only a few minor details are yet to be worked out.

Dutch Shell-Standard of New York Fight Reported Near End

NEW YORK, July 6

DIFFERENCES between the Standard Oil Co. of New York and the Royal Dutch-Shell interests over the sale by the former of oil bought from the Russian Soviet government, are said to be near a settlement and the kerosene price war in India is reported near an end.

The New York Times July 3 published an article to this effect but at the offices of the Standard of New York and the Asiatic Petroleum Co., whose president Richard Airey has acted as spokesman for the Royal Dutch-Shell group in the controversy, no comment on the Times story nor statement whether differences had been settled could be obtained.

Inquiry at the Standard office was referred to Charles F. Meyer, president, who is in charge of the company's foreign trade, although Herbert L. Pratt, chairman of the board, recently returned from Europe where, it is said, he acted as a peace messenger. Mr. Airey is in Europe and no other officer of the Asiatic would talk in his absence.

According to the Times, opinion in companies that have dealings with both the Standard and the Royal Dutch-Shell is that no announcement of a settlement would be made but the differences would be allowed to blow over.

The trouble arose when the Standard and Vacuum Oil Co. contracted with the Soviet government to buy Russian petroleum products for sale in southeastern Europe and southern Asia. Sir Henri W. A. Deterding, managing director of the Royal Dutch-Shell, accused the American companies of buying stolen goods, because the oil came from properties that had been confiscated from private operators, including the Dutch-Shell, when the Russian empire was overthrown and industries nationalized.

The Standard issued a statement last January in which it accused the Royal Dutch-Shell of organizing and instituting a price war in India which "will cost the Royal Dutch-Shell and Burmah Oil companies approximately $12,750,000 a year and the Standard Oil Co. of New York approximately $4,000,000 a year."

The Standard said it had not undercut its competitors nor offered secret or other rebates, that it would continue to serve its markets effectively, and would not be swerved from its policy.

According to the Times the Standard will carry out its present contracts with the Russians but may buy less of the Russian oil in the future, although its agreement with the Royal Dutch-Shell does not so specify.

For a time last year the price war threatened to spread from India to other countries and at one time it was said it might even reach the United States.

Peoria Post Office Gets Land Grant Rates

CHICAGO, July 9.—Shaffer Oil & Refining Co. recently contracted with the post office at Peoria, Ill., to supply its gasoline requirements on the same basis as the company is supplying the Chicago post office. The material is billed at spot price date of shipment plus ½-cent handling charge, but the contract stipulates an 8.24-cent up stop.

The Shaffer manager at Peoria sets apart one tank for the exclusive use of the post office and supervises unloading and loading of tank cars. The post office sends to the Shaffer bulk plant with its own tank truck and gets its own gasoline. Thus the post office is actually a tank car buyer with rented storage and operates its own trucks for its own convenience.

By this means a post office or any other government agency can effect a considerable freight saving, which a local jobber can not enjoy, by buying in Oklahoma and paying the bill from Washington the government gets the benefit of ancient "land grant rates" which are especially liberal from Group 3 to the North and East.

Coupons Discontinued In Ohio Code Effort

CLEVELAND, July 9.—Independent gasoline distributors in Cleveland have discontinued the sale of coupon books at a discount of about 2 cents a gallon. Officers of the Western Reserve Petroleum Club expect that all companies will discontinue the sale if the Independents keep in line.

This is the first step in this district which comprises Cuyahoga, Lake, Geauga, and Ashtabula counties to put the Ohio code of ethics into effect.

The club's officers and directors set July 5 as the date on which the code was to have become effective in the four counties but some difficult situations have not yet been straightened out, it is said.

New Proration Plan for Little River Is Put Up to Operators

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, July 7

THE first agreed on plan of handling the Little River field, now the center of the Mid-Continent's biggest drilling campaign, having failed, another was presented by the umpire and the operators' advisory committee to a meeting July 6. The outlines of this were given in NATIONAL PETROLEUM NEWS July 4.

Drilling restrictions of one well to 20 acres in the field, embodied in an order of the state corporation commission, are removed by the substitution of the new plan. Operators, now drilling or preparing to drill some 95 wells in Twp. 7-6, are free to go ahead and add to this program whatever number they desire. It is difficult to say at this time what increase in drilling will be the result of this action.

The entire Little River field, including the older part now practically all drilled, lying in the north part of Twp. 7-6 and the south part of Twp. 8-6, and the new area in the east central part of Twp. 7-6, will be limited to 125,000 barrels daily production, beginning Sept. 10. The amount of production to come from each lease will be based upon a combination of acreage and potential production, similar to the plan in effect in Winkler county, Tex.

The operators were not unanimous in voting to substitute the new plan for that which was agreed upon several weeks ago. On the roll call of the 29 who have leases in the affected area, 12 voted for the plan; 11 were not present; five did not vote and one voted against the plan.

The substitution of this plan for the previously adopted one was caused by the refusal of several operators to abide by the drilling restriction phase of the one which was made an order by the commission. That plan limited drilling to one well to 20 acres, fixed Aug. 15 as the completion date for the wells now drilling and provided that beginning Aug. 15 production would be limited to 1,600 barrels to each 40-acre unit, or half that to 20-acre units.

Three operators started more wells than the number permitted in the order and another was preparing to do so. It was recognized from the start that the commission had no authority to say how many wells an operator could drill; it was merely hoped by the majority who voted for the former plan that everybody would "go along."

The substitute order was to be presented to the commission today or Monday for its approval and issuance as an order. Whether it will be necessary for the commission to attempt to enforce the proration order, if it is issued, is an undetermined question. The operator who voted against it in the meeting served notice that he would insist upon the entire Seminole area's being prorated if the Little River field is.

The plan recommended by the advisory committee and the umpire, adopted by the meeting, is as follows:

".....said field shall be divided into tracts of 20 acres each. Each such 20-acre tract which is in production shall be considered as a unit for the purpose of proration hereunder. The daily amounts of oil to be produced from each such 20-acre unit shall be determined as follows:

"Each unit shall be entitled to produce a quantity daily equal to the quotient obtained by dividing one-quarter of the maximum amount of oil permitted to be produced daily in the field by the number of 20-acre tracts in the field and producing at the commencement of the current proration period without reference to the number of wells located on such unit, and in addition thereto shall be entitled to produce daily its prorata of three-quarters of the maximum amount of oil permitted to be produced daily, based on the ratio of the daily average potential production from the field.

"Ten-acre units shall be considered as one-half of a unit and prorated accordingly.

"The term 'daily potential production' as applied to any acreage shall mean the number of barrels of oil which the wells thereon are capable of producing in a day of 24 hours. The daily potential production of each well shall be determined by the umpire on the tenth of September from tests or other methods to be prescribed by the advisory committee and such determination shall control proration hereunder for that month.

"In like manner the daily production shall be determined on or immediately prior to the first day of each calendar month thereafter and such determination shall control proration hereunder for such month.

"The term 'average potential production' as applied to a 20-acre unit hereunder shall mean the average of the daily potential production of all wells thereon, determined as provided by this rule, obtained by dividing the aggregate daily potential production of all wells on such unit by the number of wells thereon.

"The average daily potential production of the field shall be the sum of the average daily potential production of all the 20-acre units in the field."

In the meeting, it was agreed to recognize a difference in the manner of prorating the older part of the Little River field and that now under development. To the older part of the field will be assigned some percentage of the total of 125,000 barrels maximum for the whole field. The committee was empowered to settle that point.

The older part of the field will be prorated on straight potential production, and not on "average" potential production as in the case of the new area. Thus, in the older part of the field, no division will be made into 20-acre units.

It is contended that the percentage plan provided for the new part of Little River will not encourage drilling. It is intended to apply the "average potential" rule. Thus, a 20-acre unit with two wells the potential of each being 2,000 barrels would have an "average potential" of 2,000 barrels, which would be identical with the potential on which its proration would be partly based if it had only one well of 2,000-barrel caliber.

The operators authorized the ad-

Bulletin

(By Telegraph)

TULSA, July 9.—The State Corporation Commission has set July 14 as date for hearing on application of Little River operators for modification of restrictive order.

The commission has cited the Reiter-Foster Oil Co. to appear before it on July 20 and show cause why it should not be fined by the state for violation of the order now in effect.

That order permitted only two wells to be drilled to each 40 acres and the Reiter-Foster has started one more than that number.

Four other companies have ceased work on excess wells.

visory committee and the umpire to continue work in the area to hold down drilling, bringing together offsetting operators and working out restrictive agreements wherever possible.

At the end of the week, the following numbers of operations were under way in Twp. 7-6:

Township 7N, Range 6 East

Section	Operator	Wells
1	W. B. Pine	1
4	Minnehoma O & G	1
5	Twin State Oil	1
7	Simon & Bean	1
10	Carter Oil	1
10	Magnolia Pet.	1
11	Blackwell O & G	3
11	Carter Oil	6
11	Continental Oil	2
11	Gypsy Oil	1
11	Magnolia Pet.	2
11	Mid-Continent Pet.	2
11	Pure Oil	2
11	Texas Co.	2
13	Carter Oil	2
13	Empire O & R	1
13	Independent O & G	3
13	Roxana Pet.	2
13	T. B. Slick	1
13	Snowden & McSweeney	1
14	Blackwell O & G	2
14	Carter Oil	3
14	Champlin Ref.	2
14	Gypsy Oil	4
14	Independent O & G	3
14	Magnolia Pet.	2
14	Reiter-Foster Oil	2
14	Skelly Oil	2
15	Barnsdall Oil	2
15	Independent O & G	2
15	Sinclair O & G	4
15	T. B. Slick	5
22	Barnsdall Oil	2
22	Gypsy Oil	1
22	Magnolia Pet.	3
23	Barnsdall Oil	1
23	Carter Oil	3
23	Gypsy Oil	2
23	Independent O & G	1
23	Mid-Continent Pet.	1
23	Pure Oil	5
23	Roxana Pet.	1
23	Texas Co.	1
24	Carter Oil	1
24	Empire O & R	1
26	T. B. Slick	1
31	Omar & Commercial	1
31	Wigton & Long	1
	Total	95

A few of this number are locations but the greater part are drilling. In addition, it will be remembered, there are 16 wells completed and shut in to 100 barrels daily each in the area, this including the eight wells drilled on cooperative basis to test the territory and eight others, these being the Snowden & McSweeney and the Independent Oil & Gas Co. wells which opened the south extension to Little River and the three offsets to each.

There is still left that element of uncertainty that comes from lack of unanimity on the new proration plan —the sentiment of those who didn't come to the meeting is unknown—and the best that can be said is that it is the intention of those who support the plan to try to hold production as it is until Aug. 15, then begin producing on the basis of 1600 barrels to Sept. 10 and after that follow the new plan.

The date of Sept. 10 was set to allow wells which will start with the lifting of the drilling restriction 25 days time from the date originally fixed as the time for completion of the present crop. This crop has had about 25 days drilling time to the day when it was decided to raise the restrictions.

W. L. (Billy) Connelly, who recently was elected vice president of the Sinclair Consolidated Oil Corp., has been associated with the oil interests which bear the Sinclair name, longer than any other man except H. F. Sinclair himself. Mr. Connelly has served in various capacities and fields, his most recent post of duty being Casper, Wyo., where he was vice-president and general manager of the Mammoth Oil Co. It is probable that his time from now on will be largely devoted to foreign fields, in which he has already had extensive experience. He will soon close offices in Casper

L. V. Nicholas Glad to be Back in Business

CHICAGO, July 6.—"L. V. Nicholas, Finance, Organization and Investment," was painted on a door at 624 S. Michigan Ave. this week. Turning the knob revealed nothing. The room was carpeted and a telephone was being installed but the office had not been set up.

"I will be on the job there Thursday, July 11," Mr. Nicholas acknowledged later by telephone. "There is nothing mysterious about what I am going to do. I am going to work for L. V. Nicholas a while and a number of things I have to do can be handled best with an office.

"I have had a delightful three months' vacation. I never felt better. I am anxious to get back in the business, so I selected this location in the Blum building where oil men are and where I can keep in touch with the industry."

Northland Moves Offices

CHICAGO, July 6.—C. L. Maguire, head of the Northland Oil Co., Minneapolis and Chicago, this week moved his office from the Blum building at 624 S. Michigan Ave. to 360 N. Michigan Ave.

Tide Water Buys at Baltimore

NEW YORK, July 7.—Tide Water Oil Co. has purchased five acres of shore front property on Curtis Bay in the Baltimore district on which it plans to build a $250,000 distributing terminal.

Biggest Gas Drive in Any Oil Field Now Under Way in Salt Creek

By Lawrence E. Smith
N. P. N. STAFF WRITER

CASPER, Wyo., July 5

SALT CREEK, that giant of Rocky Mountain fields, several years ago finished its boom stage. A developed field, except for deeper sand drilling, both exploratory and on proved locations, its future and its problems henceforth revolve around the application of efficient methods of producing the large amount of oil that is left in the sands.

There exist large reserves of oil in the Lakota sand, or the third principal proved horizon. Exploratory work is in progress to the Sundance sand, where the existence of light oil has been proved. Other and deeper horizons conceivably may produce oil. The Midwest Refining Co., operating for the Salt Creek producers and Mountain Producers companies, has completed 88 wells in the Lakota sand, of which a few are being produced, the others shut in until needed and hence until it is more economic to produce them.

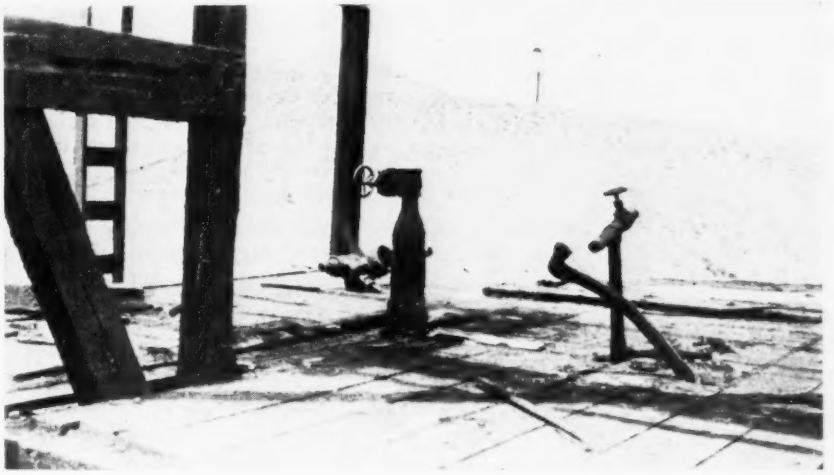
For the present, however, practically everything is subordinated to the more complete recovery of oil from the First and Second Wall Creek sands, the old stand-bys of the field from which by far the greater part of the production has come.

The greatest gas drive in the country anywhere is now under way in the Salt Creek field. It constitutes an outstanding example of conservation of gas. In fact, so far has this conservation idea been carried by the Midwest Refining Co.—whose efforts along any line in this field overshadow everything because the Midwest operates about 50 per cent of the field acreage—that no evidence of gas wastage can be found anywhere on its properties.

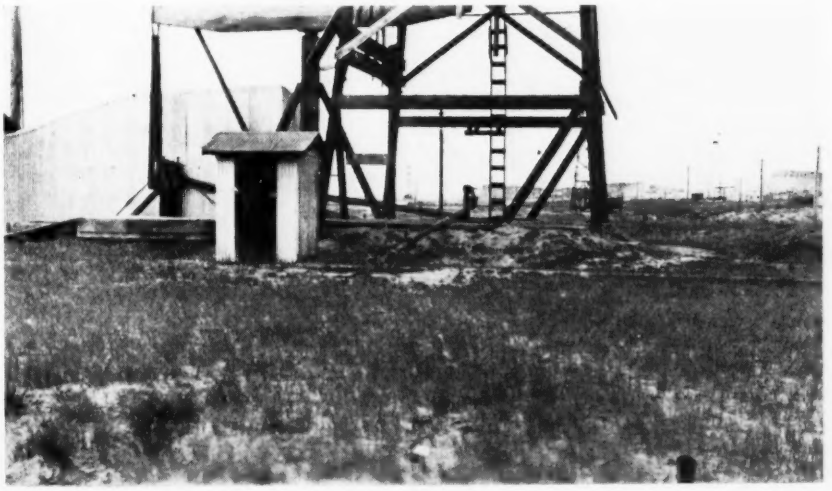
The drive is being carried on wholly with natural gas. The process is one of recycling. Gas is taken from the 1500 wells operated by the Midwest Refining Co., run through the huge gasoline plant and the residue gas, except that amount required as fuel for the field boilers, domestic heating in the field and for the steam turbine plant which supplies current for all the field operations, is returned to the First and Second Wall Creek sands.

Experimental work on stimulating production by natural gas drive was started in 1926 on four wells. A large increase in the number of intake wells was effected in 1927 and others have been added this year until there are now some 50 wells in the two sands which are used as intakes, or key wells.

The area of the field where the Midwest is restoring pressure on leases operated by it is roughly four miles long and more than two miles wide. This area is completely encircled by trunk pipe line which, with branches off this loop inside the encircled area, involved the laying of about 16 miles of six and eight inch line, chiefly eight-inch. Laterals of two-inch size lead from the trunk line to the key wells.



Above—One of the high gas/oil ratio wells in Salt Creek, shut in to avoid dissipation of pressure. There are 15 such in the field. Below—An intake well in the Salt Creek field. Gas is put into this well at about 140 pounds pressure



Thus, in the recycling process, gas is taken throughout the field both from tanks and from casingheads, handled through the 20 booster stations and is run through the gasoline plant and returned to the trunk line surrounding the area of the gas drive. It leaves the gasoline plant at average pressure of about 150 pounds per square inch and the intake wells near the plant receive it at about that pressure. In general, the gas goes into the intake wells at about 140 pounds pressure. At present a total of 30 million cubic feet of gas daily is being returned to the sands. Included in this amount is the product of the natural gasoline weathering tanks, propane and butane. This

has no commercial value here. In fact, it cannot be burned, as condensation occurs near the burners—a hazardous condition.

Prior to the beginning of the gas drive, while natural sand pressures were too high to permit the present use of this weathered-off product. it could only be disposed of by burning in a giant flambeau. That landmark has gone. In its place is a plant of high speed, electrically driven compressors, specially built to take this

Compressor plant in Salt Creek built to return unmerchantable products of weathering at gasoline plant to the oil sands

by-product and push it into the lines leading into the intake wells. There, diluted with the residue gas to the point where condensation does not occur, it does its part in moving oil through the sands to the producing wells.

No great preparation is required to convert an oil well into an intake well. The First Wall Creek wells are cased to top of the sand with 8¼-inch and the Second Wall Creek wells with 6⅝-inch or 6¼-inch. There being no open hole, tubing-cemented or run with packer, as is the method employed in many areas—is not required. The gas is simply admitted to the sand through the casing. About all that is necessary is to clean out the well and equip it with the standard fittings.

Second sand pressures at the time the gas drive was started had fallen to 30 to 50 pounds. Original pressures are not known but were considerably in excess of the 500 pounds prevailing when observations were first made several years ago. In a number of instances wells adjacent to the intake wells have increased their pressures from the low figures to as high as 75 pounds. Both sands have proved to be well adapted to the drive and oil production increases in over 150 wells have ranged from 10 to 100 per cent. Results, in the form of increased production, are quick to appear, the longest time required for any of the wells offset distance from intake wells to show results having been about two months, and most of them in much shorter time. Recent extensions of the system, or additions to the list of intake wells, should soon mean about 250 wells with production in excess of what they were making naturally.

Over a period of several years the Midwest has studied closely the performance of individual wells and the vast amount of information gathered has been invaluable in planning its gas drive. It has pretty well mapped the wells best adapted for intake wells and it keeps adequate records on the drive as it progresses. Production figures are kept on a weekly basis on the wells surrounding the intake wells. From time to time the closed-in pressures of affected producing wells are taken. These may be said to be true pressures, as the fluid doesn't build up much above the sand. Periodic records are taken on the gas which the key wells are taking and on the pressures.

In the main, the gas drive constitutes the big program of conservation on properties operated by the Midwest Refining Co. There are several subsidiary features contributing to the same general end. For instance, it has been the practice of the company for several years to shut in wells with high ratios of gas to oil and at present there are 15 such wells in various parts of the field. No fixed ratio has been set up on this—no predetermined gas/oil factor established as the rule to follow. Due attention is paid to the quantity of oil produced. If a well is making 25 or 30 barrels of oil, say, and a considerable quantity of gas, it usually is produced and the gas saved and recycled. A well that makes five to 10 barrels of oil with 11,000 or 12,000 feet of gas per barrel is shut in, the energy value of the gas on nearby wells being considered to outweigh the value of the oil. However, wells have been shut in which made as high as 30 barrels of oil. These were making excessive amounts of gas also. It is of interest to note that wells which were shut in are tested from time to time to see whether the gas/oil ratio has changed and in no case has change been found.

Another practice which is being followed in some parts of the field is to pump some gassy wells part time, shutting them in and taking no gas from them the rest of the day.

Tests are now under way on several methods of effecting better control of the gas in producing wells. These involve changes in location of tubing, pumping at different speeds and lengths of stroke, intermittent pumping. Such tests, being in the preliminary stage, do not warrant discussion.

It should be understood that this comprehensive plan of applying gas drive to such vast territory is possible only because of the unit character of the holdings. The Midwest Refining Co. owns no leases itself in the field, it is merely the operating company on the holdings of a number of companies such as the Wyoming Associated, the Midwest Oil Co., Wyoming Oilfields, Consolidated Royalty and others. It has the full support of these companies on the program of gas conservation it has planned. The federal government is the principal royalty owner and gives the heartiest kind of support and encouragement to the conservation work, squarely backing up the many utterances of the government on the energy value of gas in producing oil. The U. S. Geological Survey, acting through its supervisor and engineers of the Casper offices, has been in close touch with the work and has been regularly consulted by the Midwest Refining Co.

Orders Another $100,000 Seized from Blackmer

WASHINGTON, July 9.—Seizure of another $100,000 worth of the property of Henry M. Blackmer, former chairman of the Midwest Refining Co., has been ordered by the criminal division of the Supreme Court of the District of Columbia.

This seizure is to be made with a view to having it condemned as the penalty suffered by Blackmer for his failing to appear as a witness in the second trial of Harry F. Sinclair, who was found not guilty of conspiracy in connection with the Teapot Dome lease.

When Blackmer failed to appear as a witness at the first trial of Sinclair his attorneys deposited $100,000 of bonds in a local bank subject to the control of the United States marshal pending decision upon the question whether the Walsh law providing for the fining of witnesses who do not respond to subpoenas served upon them by the United States consuls in foreign countries is constitutional.

Blackmer contends that it is not. The understanding is that Blackmer's attorneys will put up another block of bonds so as to make it unnecessary for the marshal to undertake the seizure of other property standing in Blackmer's name.

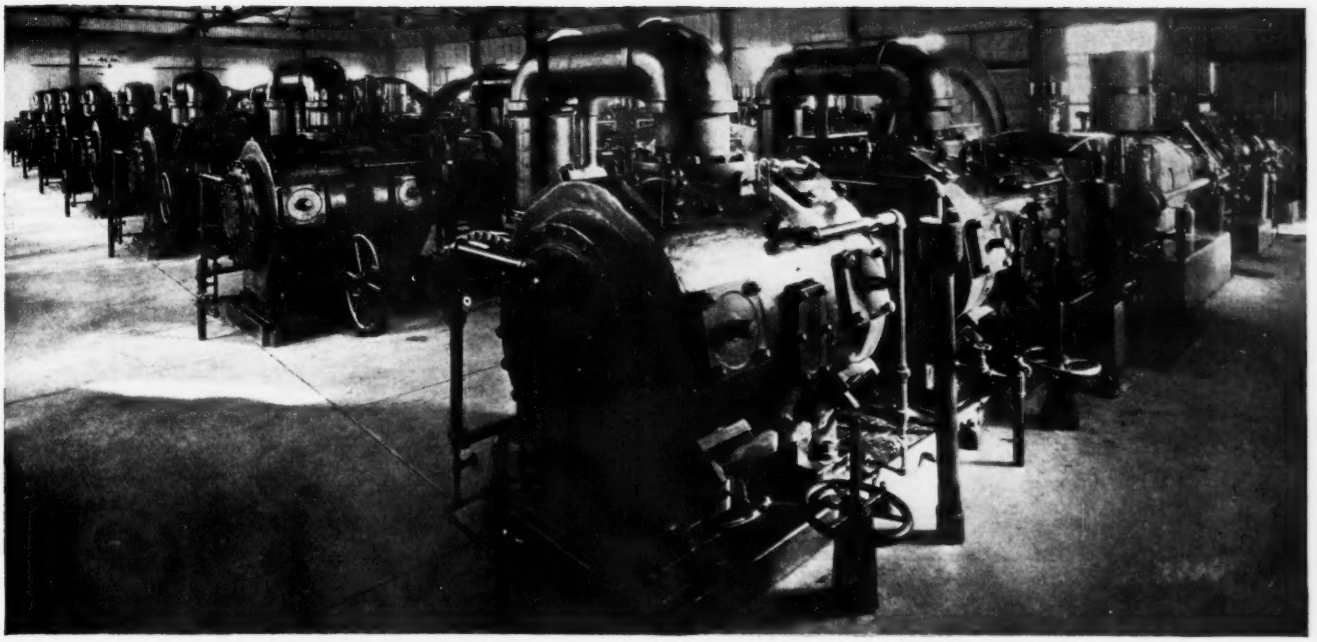


Fig. 1—Compressor room at Skelly's Schafer plant equipped with 320 H. P. tandem engines direct connected to 25 by 20 tandem compressors

Three Operating Men Run 25,000 Gallon Natural Gasoline Plant

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, July 6

AUTOMATIC control of plant operations has been so thoroughly applied at the Schafer ranch gasoline plant of the Skelly Oil Co. that three shift men find it possible to handle the 30,000,000 cubic foot plant producing around 25,000 gallons of gasoline per day.

Actual plant operation is conducted by one stillman, one engineer and one oiler. This does not include the office personnel or the special force necessary to handle the fractionating plant producing liquefied petroleum gas as a by-product.

Field characteristics on the 13,000-acre ranch, located in Hutchinson county, Texas, have led Skelly executives to the conclusion that large volumes of gas will be available for processing over an extended period. For that reason it was determined to use large gas engines and compressors, double the size normally employed at gasoline plants where manufacturers may find it necessary to decrease the number of units in a relatively short time because of a declining gas supply.

The compressor room of the Schafer plant now contains eight 320-horsepower Worthington engines of the two-cylinder tandem type. They are direct connected to Laidlaw 26 by 20 tandem compressors. Each unit is capable of delivering 4,000,000 cubic feet of gas per day to the absorbers at the desired pressure.

Five Tulsa type absorbers handle the gas from the compressors. The gas is cooled through Southwestern gas coolers and passes through a final scrubber tank before going to the absorbers, as an extra precaution.

To assure that an equal amount of gas will pass through each absorber the gas passes from the final scrubber into a manifold connected with each column.

Gas lines from the manifold to the absorbers are equipped with orifice plates to control the gas stream. Differential pressures through these orifices are indicated by manometers so that the operators may check the gas flow periodically. Gate valves are installed in the lines to give additional control of the gas volumes

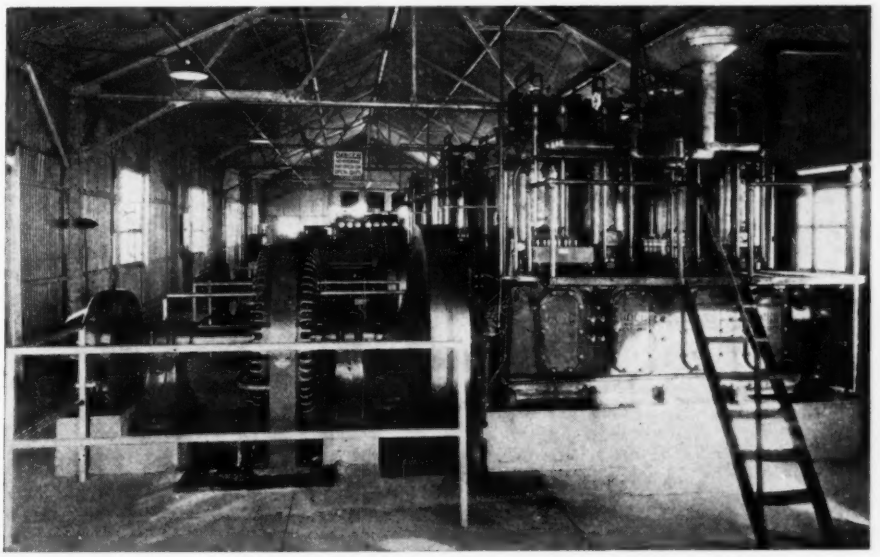


Fig. 2—Auxiliary room where electric current is produced for the gasoline plant, field operations and a carbon black plant at a cost of about ½ cent per kilowatt hour

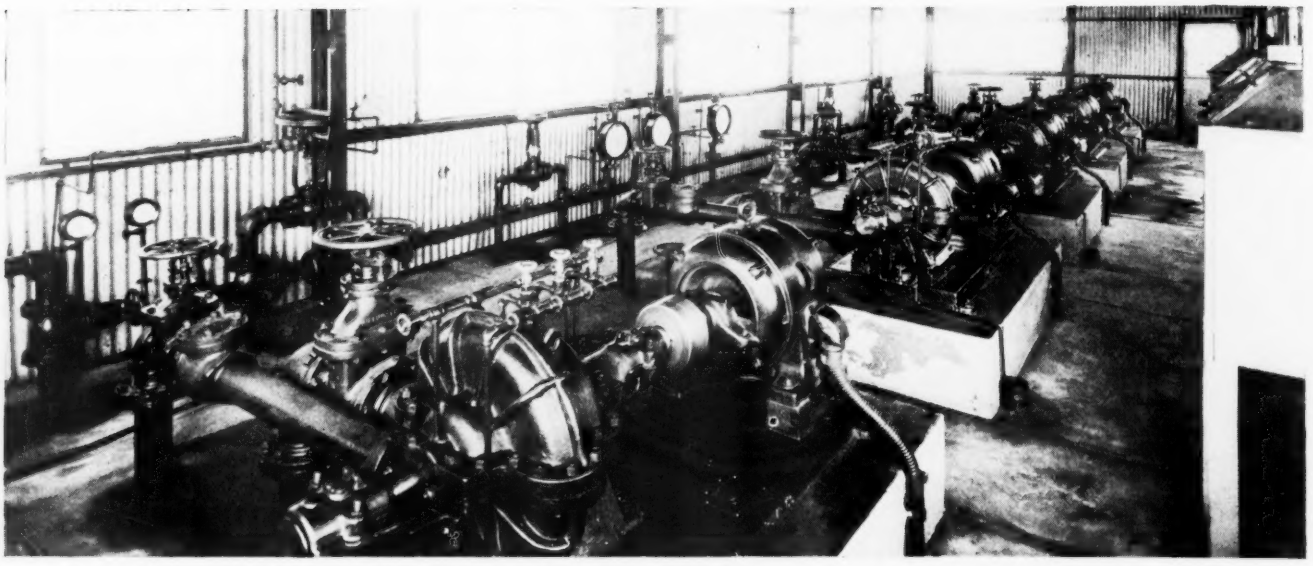


Fig. 3—Automatically controlled centrifugal pumps direct connected to electric motors used for all mineral seal oil transfers in the Schafer ranch plant

if necessary.

The volume of lean oil being pumped over the absorbers likewise is subjected to careful control. Orifice plates in the lean oil lines to the absorbers aid in this control in the same manner as the gas volumes are regulated. Orifices are placed in the lines by the plant chemist on the basis of tests of the gasoline content of the gas to give a maximum saturation of oil.

The distillation section of the plant consists of three Type 75 Southwestern distillation units. These may be operated as a single distillation plant or as separate units. In actual operation it has been found desirable to operate each unit separately.

When operated as a single plant it was sometimes difficult for the stillman to trace down trouble. In the single units any inequality in operation will be noted quickly and the remedy can be applied.

To achieve uniform operation of the three units a Foxboro automatic flow controller was installed to provide each unit with the proper volume of rich oil. This controller divides the stream of rich oil into three parts, sending one to each distillation unit. The controller is set by the plant chemist on the basis of tests of the saturation of the mineral seal oil. The controller is designed to provide each unit with the number of gallons of rich oil per minute which the unit will strip down completely. In the distillation units themselves the usual control devices are applied to preserve proper temperature conditions in the still, dephlegmator and condenser.

A Fisher float control operates the pump pulling lean oil from each distillation unit. This device assures that the still will never be pumped dry of oil. All oil circulation in the plant is handled by Dean Hill 2 stage centrifugal pumps direct connected to Wagner electric motors.

Automatic control also has been carried into the boiler plant. This part of the plant consists of four 80 H. P. Collins boilers. The fire under each boiler is controlled by a Fisher feed gas regulator which controls the fire in accordance with the demand for steam. The water supplied to the boiler is controlled by a Copes feed water controller. A Graver zeolite type water softener provides the plant with water testing about 1.5 grains of hardness from a raw water with an average of 19 grains of hardness.

The Schafer plant has been equipped with its own electrical generators which are delivering electric power to the plant, to Skelly producing operations on the ranch and to an electrically operated carbon black plant of the Cabot Co., subsidiary of Godfrey L. Cabot, Inc. Electric current is being produced at a cost of about one-half cent per kilowatt hour by three 4 cylinder, 200 H. P. vertical Hope engines direct connected to 125 K. V. A. General Electric generators.

The gasoline produced at the plant is treated by the Hypochlorite method which is used at other Skelly plants in the Panhandle fields of Texas.

Russian Government Buys Huge Pipe Still

CHICAGO, July 6.—Amtorg Trading Co. of New York, American representatives of the Russian government in most matters commercial, recently closed a deal with the Graver Corp., East Chicago, Ind., for what will be, when finished, one of the largest pipe stills in the world. It will be installed at Baku.

The still will have a daily capacity of 10,000 barrels. It will be shipped to Russia complete with fractionating and condensing equipment.

Bureau Promises Exhibit At Tulsa Exposition

TULSA, July 9.—The exhibit of the experiment station of the U. S. Bureau of Mines at Bartlesville, always a leading feature in the International Petroleum Exposition here, will be enlarged this fall, according to N. A. C. Smith, superintendent.

In a letter to J. Burr Gibbons, manager of the exposition which starts Oct. 20, and is concluded Oct. 29, Mr. Smith has outlined some of the station's displays for this year.

The gas lift working model, in which spectators were able to see every working part in motion last year, will be exhibited again.

There also will be a miniature pipe still equipped with a bubble tower and condensers. This apparatus, though only five feet and six inches in height, had a distillation capacity of a half gallon of crude oil an hour. The bubble tower is made of stainless glass and pyrex glass so that the entire operation is visible. The tower is capable of "doing very fine fractionating," according to Mr. Smith and the crude oil can be distilled to make gasoline, kerosene and other fractions in one operation.

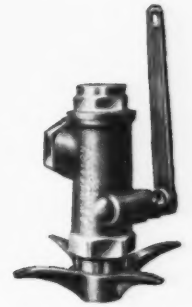
In connection with the bureau's safety exhibit, there will be the latest safety car on the tracks in the exposition. Demonstrations will be given in the use of gas masks. A huge steel tank, with glass sides will contain gas and experts will enter the gas chamber to show the efficiency of the masks.

In order the emphasize safety devices around the rig, the bureau will have a full-sized bull wheel on display. It will be operated by a small electric motor and is equipped with all the latest devices and guards for safety. Placards on the wheel will explain the uses of the devices.

Tank Truck of the Pure Oil Company, equipped with four Wheaton Type A Faucets.

Anti-Freeze Valve

Single Swing Joint



Type 25 Loading Valve

Internal Valve for Storage Tanks

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Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended July 6 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended July 6	Total Week Ended June 8
Plants Reporting	12	28	28	12	80	80
Crude Capacity (bbls.)	92,000	157,200	127,600	54,900	437,100	431,700
Cracking Capacity	30,700	52,600	17,200	22,700	123,200	123,200
Da. Av. Crude Runs	64,769 + 4.8	101,486 — 6.5	91,933 — 6.6	53,946 — 0.03	312,134 — 3.5	326,911
Da. Av. Other Oils	8,618 + 63.0	3,366 +288.2	6,497 — 8.6	853 + 55.9	19,334 + 40.0	22,327
GASOLINE—Gallons						
Stocks, June 29	14,666,000	39,725,000	18,238,000	2,911,000	75,540,000	78,665,000
Prod. 6-29 to 7-6	9,488,000 + 2.2	16,060,000 + 0.3	8,907,000 — 8.8	4,431,000 — 7.9	38,886,000 — 5.3	43,461,000
Ship. 6-29 to 7-6	10,214,000 + 4.5	18,372,000 — 0.2	9,575,000 — 2.7	5,050,000 — 12.0	43,211,000 — 1.2	44,059,000
Stocks, July 6	13,940,000 — 5.0	37,413,000 — 5.8	17,570,000 — 3.7	2,294,000 — 21.3	71,215,000 — 5.7	78,057,000
Ratio Sales to Prod.	107.7%	114.4%	107.5%	114.0%	111.2%	101.4%
KEROSENE—Gallons						
Stocks, June 29	6,525,000	5,807,000	1,549,000	826,000	14,707,000	11,892,000
Prod. 6-29 to 7-6	2,274,000 + 19.7	2,149,000 — 17.3	1,454,000 — 3.7	389,000 — 2.8	6,266,000 — 1.1	6,055,000
Ship. 6-29 to 7-6	2,140,000 + 5.9	2,082,000 + 1.4	1,390,000 — 3.8	199,000 — 64.3	5,811,000 — 4.4	5,620,000
Stocks, July 6	6,659,000 + 2.1	5,874,000 + 1.2	1,613,000 + 4.1	1,016,000 + 23.0	15,162,000 + 3.1	12,337,000
Ratio Sales to Prod.	94.1%	96.9%	95.5%	51.2%	92.7%	92.7%
STOVE DISTILLATE—Gallons						
Stocks, June 29	1,838,000	2,355,000	520,000	67,000	4,870,000	4,436,000
Prod. 6-29 to 7-6	303,000 + 42.2	192,000 — 33.6	78,000 — 23.5	65,000 — 15.6	638,000 — 6.3	1,008,000
Ship. 6-29 to 7-6	75,000 — 74.6	278,000 + 57.1	194,000 +151.9	82,000 +272.7	629,000 + 10.2	971,000
Stocks, July 6	2,066,000 + 12.4	2,269,000 — 3.7	404,000 — 22.3	50,000 — 25.4	4,789,000 + 0.2	4,473,000
Ratio Sales to Prod.	24.8%	144.8%	248.7%	126.2%	98.6%	96.3%
GAS OIL—Gallons						
Stocks, June 29	9,006,000	39,018,000	2,010,000	5,986,000	56,020,000	48,783,000
Prod. 6-29 to 7-6	1,511,000 + 4.4	43,000	1,512,000 — 2.8	2,004,000 + 10.8	4,984,000 — 30.9	9,346,000
Ship. 6-29 to 7-6	2,024,000 + 15.6	1,572,000 + 25.2	1,713,000 + 11.1	2,290,000 + 19.0	7,599,000 + 17.4	7,566,000
Stocks, July 6	8,493,000 — 5.7	37,403,000 — 4.1	1,809,000 — 10.0	5,700,000 — 4.8	53,405,000 — 4.7	50,563,000
Ratio Sales to Prod.	133.2%	.....	113.3%	114.3%	152.5%	81.0%
FUEL OIL—Gallons						
Stocks, June 29	19,584,000	47,477,000	52,150,000	18,637,000	137,848,000	120,711,000
Prod. 6-29 to 7-6	7,147,000 + 3.1	8,357,000 + 10.8	13,960,000 — 7.1	7,926,000 + 2.7	37,390,000 + 0.4	37,206,000
Ship. 6-29 to 7-6	6,719,000 — 4.2	5,868,000 + 2.7	11,037,000 — 12.1	7,174,000 — 16.4	30,798,000 — 9.1	32,773,000
Stocks, July 6	20,012,000 + 2.2	49,966,000 + 5.2	55,073,000 + 5.6	19,389,000 + 4.0	144,440,000 + 4.8	125,144,000
Ratio Sales to Prod.	66.0%	70.2%	79.1%	90.5%	82.4%	88.1%

Gasoline Produced by Various Methods, Week Ended July 6

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	6,249,000	65.9	11,972,000	74.5	7,279,000	81.7	2,337,000	52.7	27,837,000	71.6
Cracked	2,657,000	28.0	3,118,000	19.4	1,320,000	14.8	1,731,000	39.1	8,826,000	22.7
Natural	582,000	6.1	970,000	6.1	308,000	3.5	363,000	8.2	2,223,000	5.7
Total	9,488,000		16,060,000		8,907,000		4,431,000		38,886,000	

+ or — columns are % change from previous week.

Gasoline Stocks Are Lowered 4,300,000 Gallons

Staff Special—By Telegraph
TULSA, July 10

A REDUCTION of 11,200 barrels daily average in crude charges was reported for the first week of July by 80 Mid-Continent refineries who report operating data to NATIONAL PETROLEUM NEWS. The daily average throughout was 312,134 barrels.

Kansas refiners were the only ones who failed to reduce runs. Crude charges in that area were increased almost 3000 barrels daily average. Oklahoma refiners reduced runs almost 7000 barrels while the Texas refiners cut runs 6500 barrels. Arkansas-Louisiana refiners reduced runs less than 1000 barrels.

Gasoline production was reduced 2,200,000 gallons, virtually all of which reduction was in the Texas and Louisiana-Arkansas districts.

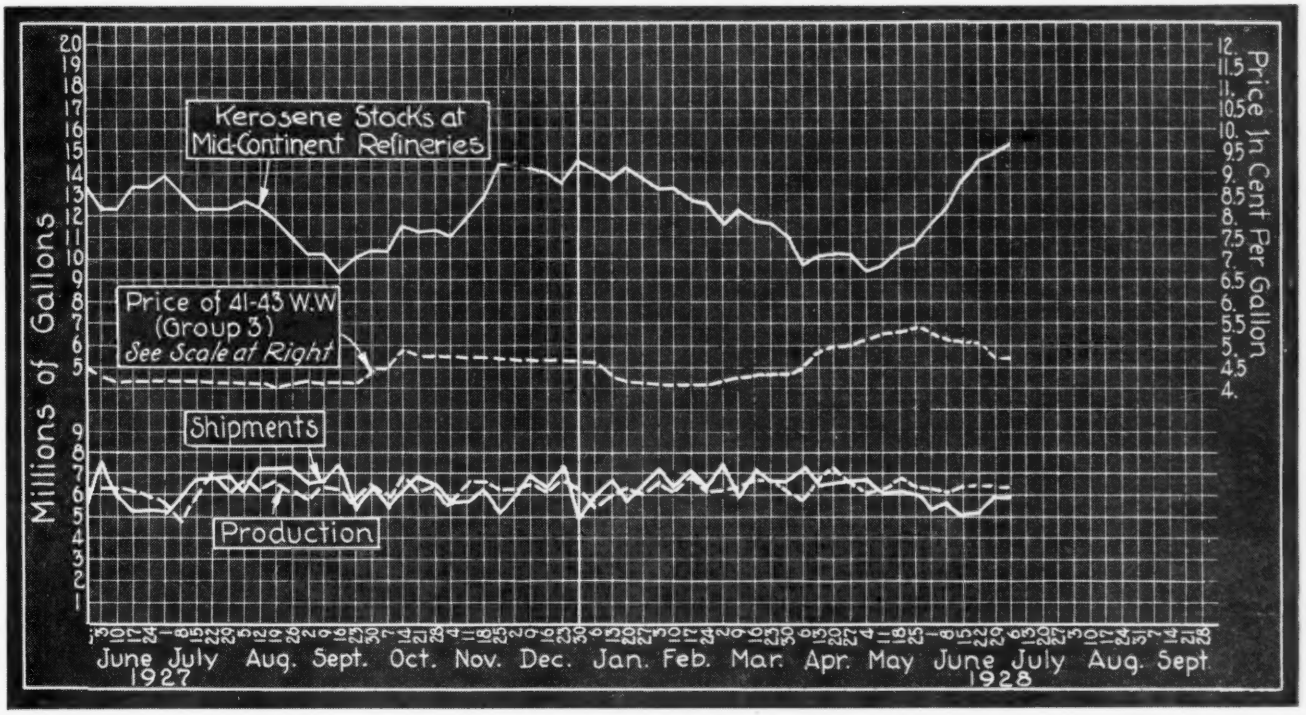
Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended July 6. Change in stocks figured from June 8.

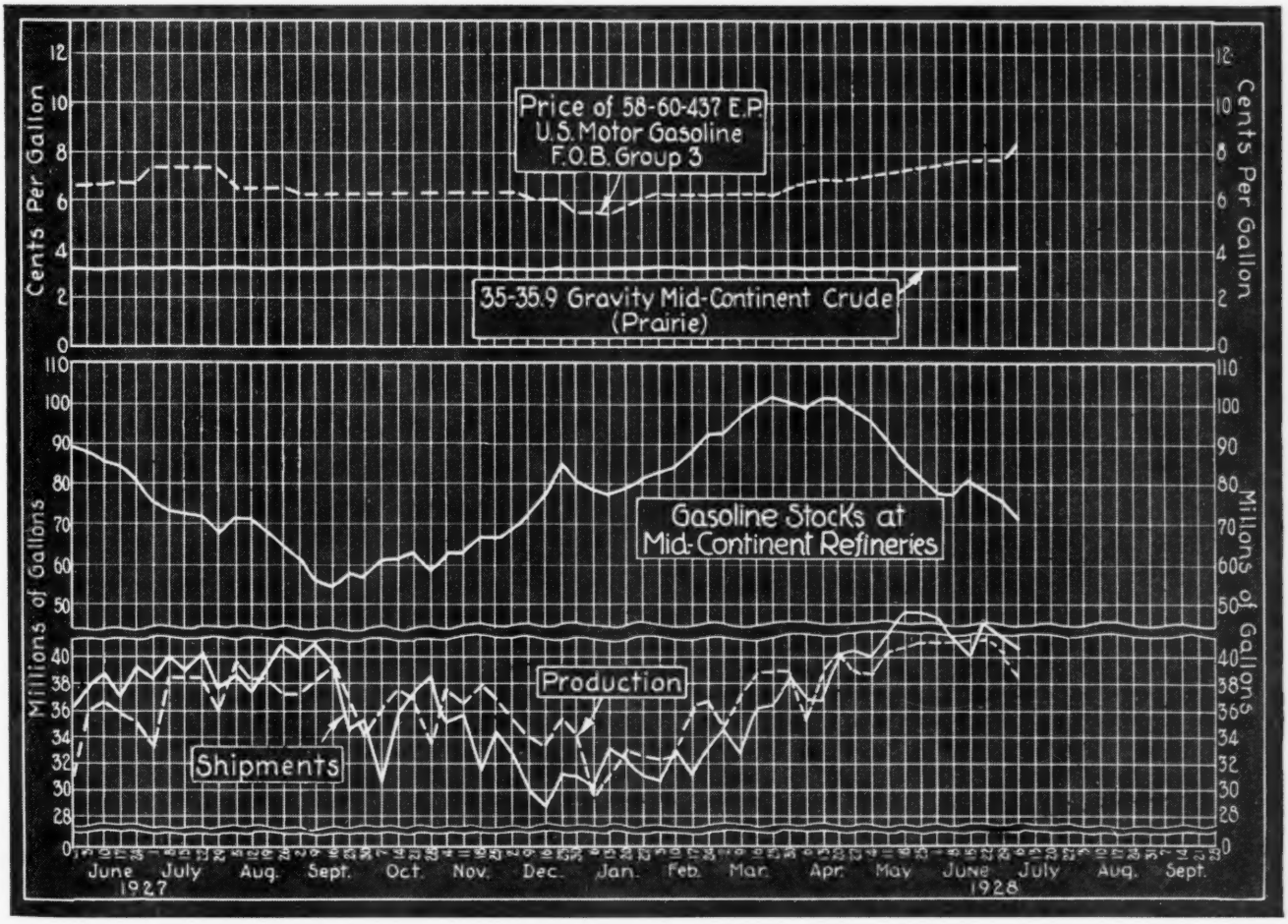
	Gallons
GASOLINE	
Production	168,670,000
Shipments	175,512,000
Net change in stocks	—6,842,000
Ratio sales to production	104.1%
KEROSENE	
Production	25,450,000
Shipments	22,625,000
Net change in stocks	+2,825,000
Ratio sales to production	88.9%
STOVE DISTILLATE	
Production	3,428,000
Shipments	3,112,000
Net change in stocks	+316,000
Ratio sales to production	90.80%
GAS OIL	
Production	27,713,000
Shipments	24,871,000
Net change in stocks	+2,842,000
Ratio sales to production	89.7%
FUEL OIL	
Production	148,946,000
Shipments	129,650,000
Net change in stocks	+19,296,000
Ratio sales to production	87.0%

Barometer of Mid-Continent Refinery Market—Week Ending July 6

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 80 Plants to National Petroleum News

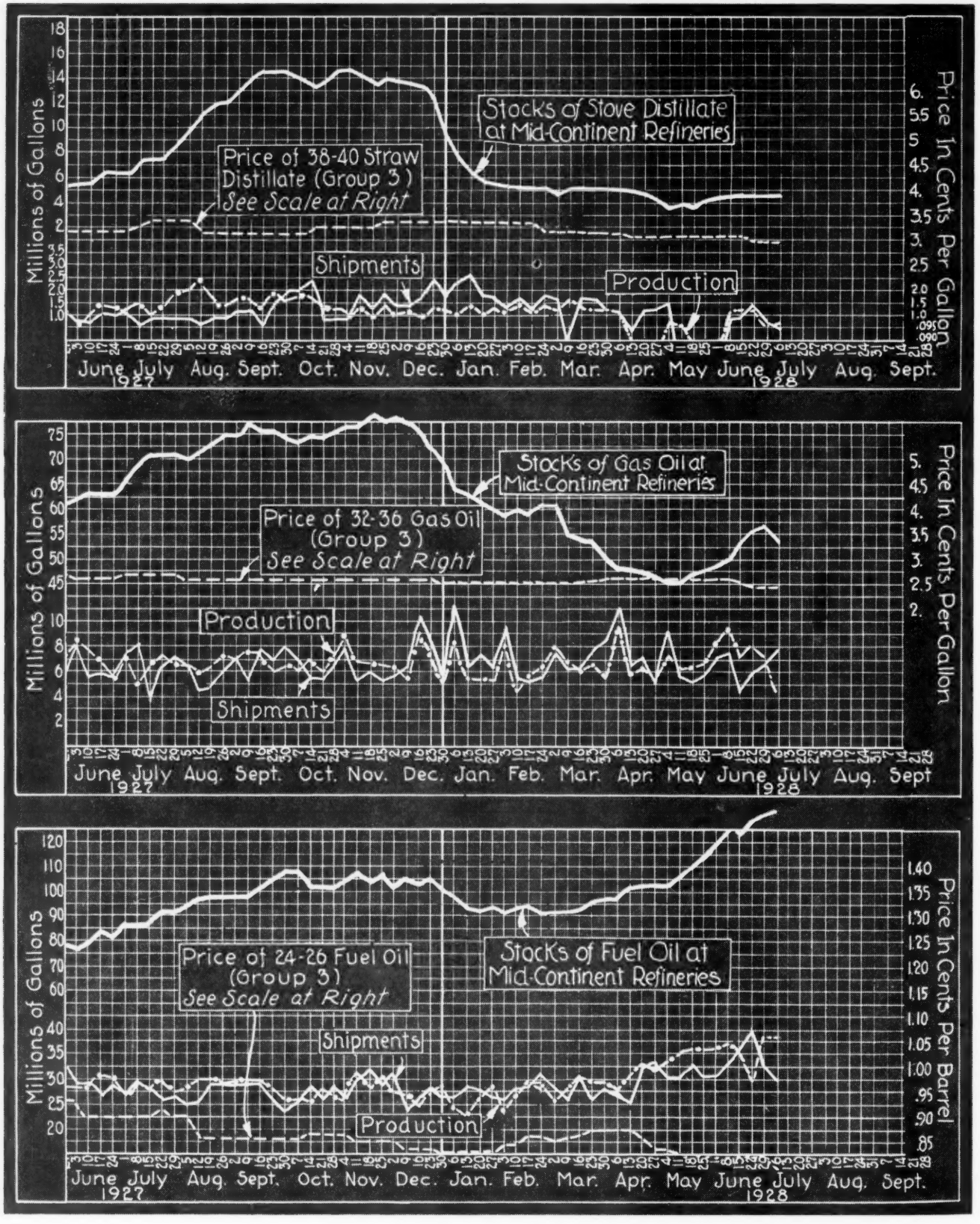

Kerosene Stocks at Mid-Continent Refineries
Price of 41-43 W.W (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price In Cent Per Gallon
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

***Prices** shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date shown in table on opposite page*

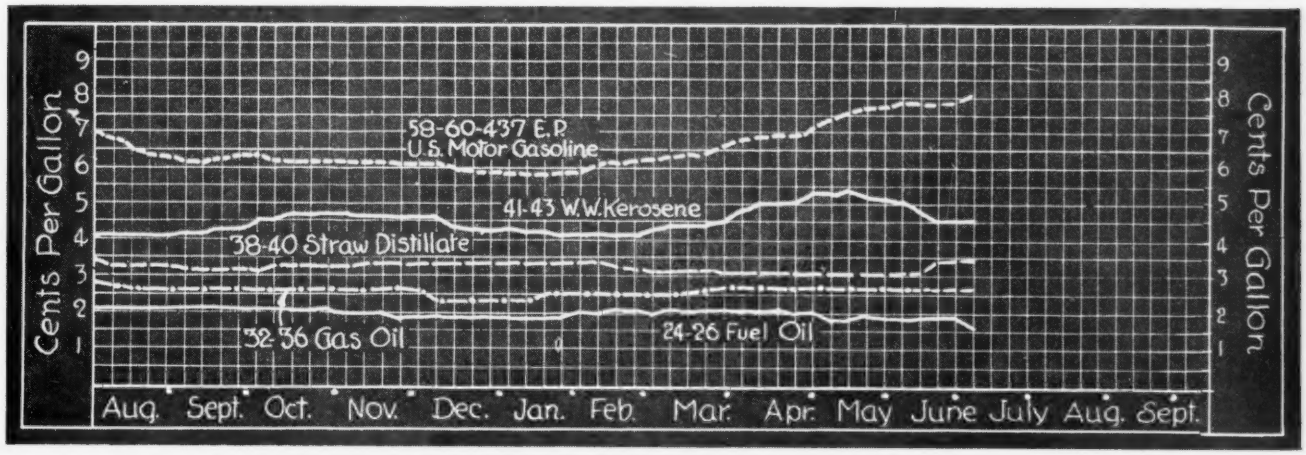

Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Cents Per Gallon
Gasoline Stocks at Mid-Continent Refineries
Production
Shipments
Millions of Gallons
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

Barometer of Mid-Continent Refinery Market—Week Ending July 6

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 80 Plants to National Petroleum News


Millions of Gallons
Price In Cents Per Gallon
Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928
Millions of Gallons
Price In Cents Per Gallon
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept
1927
1928
Millions of Gallons
Price In Cents Per Barrel
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Stocks of Fuel Oil at Mid-Continent Refineries
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
58-60-437 E.P.
U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.

Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this Issue

Production totaled 38,886,000 gallons. This is the first time since the week ended May 4 that production has been less than 40,000,000 gallons.

Shipments remain well above the 40,000,000-gallon mark, the total being 43,211,000 gallons. Kansas gasoline shipments were up approximately 500,000 gallons while Oklahoma shipments were stationary. Texas refiners failed by 300,000 gallons of moving the amount of gasoline moved the last week in June. Arkansas and Louisiana also lost a little ground, the result being a loss in shipments for the field of approximately 500,000 gallons.

The reduction in gasoline production, however, far outstripped the loss in shipments and gasoline stocks were reduced 4,300,000 gallons. Stocks on hand July 6 totaled 71,215,000 gallons. This figure represents approximately 11.5 days' supply at the current rate of shipments.

Stocks on hand July 8, 1927, at virtually the same group of plants totaled 76,215,000 gallons. At that time crude runs were only 252,533 barrels, gasoline shipments 38,498,000 gallons, and gasoline production 33,018,000 gallons.

Kerosene stocks continued to increase with production virtually unchanged and shipments off approximately 200,000 gallons. Stocks on hand total 15,162,000 gallons, compared with 13,043,000 gallons a year ago.

Stove distillate stocks were increased only 9000 gallons. Production was off 43,000 gallons while shipments were up 58,000 gallons. Stocks are down to 4,789,000 gallons, approximately 2,000,000 gallons under the total a year ago.

Gas oil stocks were cut 2,600,000 gallons, the first reduction since the first week in May. Stocks on hand total 53,405,000 gallons. All areas drew on stocks. Gas oil production in Oklahoma shows up as a minus quantity this week because refiners withdrew more gas oil from storage for rerunning than they produced. Shipments were increased in Oklahoma, causing a net reduction in stocks of 1,600,000 gallons.

Fuel oil continued to pile up with stocks July 6 totaling 144,440,000 gallons. Shipments were off 3,000,000 gallons while production was steady at 37,390,000 gallons. It is interesting to note that while Oklahoma refiners ran 101,486 barrels of crude to stills, the fuel oil production amounted to 8,357,000 gallons. Texas refiners with 91,933 barrels of crude charged to stills produced 13,960,000 barrels of fuel. Texas refineries hold 5,000,000 gallons more fuel in storage than Oklahoma.

Late Market Changes

DENVER, July 10.—On July 10 Continental Oil Co. advanced the service station price only, of gasoline 1 cent throughout Wyoming, making a 3 cent spread between tank wagon and retail prices for the first time in that state.

On the same date it also advanced tank wagon and service station prices of gasoline 1 cent generally in Montana.

Weighted Average Prices Oklahoma Market

On Feb. 6, 1928, National Petroleum News adopted the policy of publishing weighted average prices on the four more important gasolines in Oklahoma, instead of a range in prices. These weighted averages together with the number of cars of each grade sold, as of Monday, July 2, are published below. The figures are not available for publication in the refinery market table on page 114 of this issue.

	Total Cars	Weighted Average
58-60 U. S. Motor, 437 e. p.	190	7.9493
60-62, 437 e. p.	19	8.1320
60-62, 400 e. p.	7	8.1429
64-66, 375 e. p.	3	8.2917

Note: Above prices are in cents per gallon, f.o.b. Oklahoma refinery in tank car lots.

Gulf Coast Lubes Improving

HOUSTON, July 10.—Continued improvement in the Gulf Coastal lubricants market is reported by manufacturers. Prices are unchanged at recently higher levels. Supplies of some grades are scarce and stocks of others have been reduced to satisfactory quantities. Inquiries are reported ahead of the usual contract season for winter supplies of zero cold test oils.

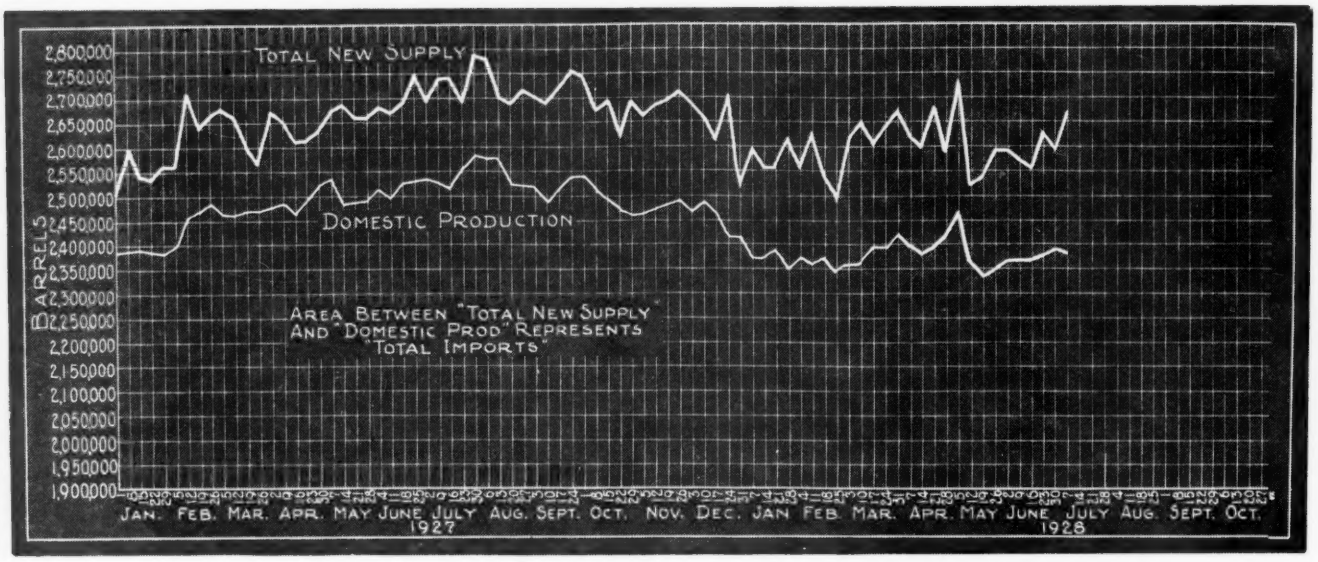
Ray Richmond Named New Yates Field Umpire

HOUSTON, July 5.—Ray W. Richmond, drilling contractor of Fort Worth, has been appointed Yates field umpire under the new Pecos county prorating order of the Railroad Commission of Texas, effective July 1. He succeeds B. C. Clarity who functioned as umpire under the earlier voluntary prorating agreement.

Before his resignation to engage in business for himself, nearly a year ago, Mr. Richmond was Corsicana district superintendent of the Humble Oil & Refining Co. He had active charge of the Humble's field work in the Mexia, Powell and Wortham developments after entering that company's service in 1920.

Previously Mr. Richmond had worked successively for the South Penn Oil Co., Hope Natural Gas Co., Shaffer Oil & Refining Co., Prairie Oil & Gas Co., Carter Oil Co., and the Sun Oil Co., in various fields.

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	July 7	June 30
Production east of Rockies	1,734,850	1,742,150
Decrease		7,300
Total production in U. S.	2,383,850	2,384,150
Decrease		300
Crude oil imports	284,143	214,286
Increase		69,857
Total crude supply	2,667,993	2,598,436
Decrease		69,557

	July 7	June 30
OKLAHOMA		
North Braman	2,900	2,900
South Braman	1,450	1,450
Blackwell	3,550	3,550
Hubbard	2,700	2,750
Thomas	1,300	1,300
Tonkawa	13,800	13,850
Garber	8,750	8,750
Burbank	31,750	31,500
Osage, outside Burbank	26,900	26,950
Watchorn	.....	700
Cushing	19,700	19,700
Yale Jennings	8,150	8,200
Davenport	1,900	2,000
Bristow-Slick	21,900	21,950
North Okmulgee	15,050	15,100
Pearson	4,800	5,000
Lyons-Deaner	6,300	6,300
St. Louis	24,500	22,450
Stroud	.....	1,100
Allen Dome	20,250	21,550
Cromwell	9,500	9,650
Papoose	4,200	4,350
Wewoka	6,400	6,450
Seminole	50,650	51,450
Bowlegs	58,150	59,000
Searight	12,700	13,050
Little River	41,500	42,950
Earlsboro	81,300	83,500
Duncan district	8,150	8,100
Graham	5,450	5,450
Fox	1,650	1,650
Healdton	14,100	14,100
Hewitt	9,450	9,450
Scholem Alechem	15,000	15,150
Others	49,650	48,900
Total Oklahoma	584,000	590,250
Decrease		6,250
KANSAS		
Greenwood County	28,500	28,550
Florence-Covert	1,200	1,200
Peabody-Elbing	3,350	3,350
Eldorado-Towanda	13,700	13,700
Augusta-Fox-Bush	3,900	3,900
Rainbow Bend	1,600	1,600
Russell	4,200	3,500
Churchill	10,400	10,850
Oxford	11,550	12,000
Others	25,200	25,200
Total, Kansas	103,600	103,850
Decrease		250
NORTH LOUISIANA		
Homer	4,350	4,350
Haynesville	6,250	6,250
Caddo, light	10,000	9,850
Caddo, heavy	3,400	3,300
De Soto, Red River	4,100	4,150
Elm Grove	600	550
Bellevue	850	900
Cotton Valley, light	1,600	700
Cotton Valley, heavy	4,100	4,100
Urania	6,850	6,900
Pleasant Hill	550	550
Total, North Louisiana	42,650	41,600
Increase		1,050
ARKANSAS		
El Dorado	5,250	5,250
Champagnolle	15,150	18,900
Smackover, light	7,650	7,700
Smackover, heavy	59,050	58,900
Stephens	1,050	1,050
Nevada	1,600	1,600
Lisbon	2,100	2,050
Others	100	100
Total, Arkansas	91,950	95,550
Decrease		3,600
TEXAS (Outside Gulf Coast)		
Panhandle District		
Hutchinson County	35,850	36,450
Carson County	6,250	6,500
Gray County	20,850	20,550
Wheeler County	950	1,000
Others	300	200
Total, Panhandle District	64,200	64,700
Decrease		500
North Texas		
Burkburnett	10,560	10,550
Electra	13,300	13,100
Iowa Park and K-M-A	3,950	4,000
Wilbarger	22,300	21,000
Archer County	21,200	21,300
Montague-Cooke	11,500	11,700
Others	650	600
Total, North Texas	83,400	82,250
Increase		1,150
TEXAS (Outside Gulf Coast)		
West Central Texas		
Stephens County	7,600	7,750
Eastland-Desdemona	8,150	7,900
Brown County	13,750	13,650
Coleman County	2,900	2,800
Callahan County	3,500	3,450
Shackleford County	10,000	10,300
Young County	8,300	8,450
Throckmorton County	900	900
Palo Pinto County	450	450
Jack County	1,350	1,400
Others	600	650
Total, West Central Texas	57,500	57,700
Decrease		200
West Texas		
Jones County	1,500	1,550
Mitchell and Scurry Counties	3,000	3,100
Howard County	5,400	5,050
Reagan County	18,250	17,950
Crane and Upton Counties	67,100	68,050
Crockett County	2,300	2,200
Pecos County	55,950	63,950
Winkler County	181,700	173,700
Others	1,750	1,800
Total, West Texas	337,050	337,350
Decrease		300
East Central Texas		
Mexia	7,100	7,100
Currie	500	500
Richland	600	600
Wortham	1,900	1,900
Corsicana-Powell	11,050	11,100
Nigger Creek	1,100	1,150
Total, East Central Texas	22,250	22,350
Decrease		100
Southwest Texas		
Luling	13,600	13,700
Lytton Springs	1,100	1,100
Somerset	700	700
Laredo District	8,050	6,350
Piedras Pintas	.....	.....
Dale	1,250	1,300
Others	400	400
Total, Southwest Texas	25,100	23,550
Increase		1,550
Total, Texas (Outside Gulf Coast)	589,500	587,900
Increase		1,600
GULF COAST		
Coastal Texas		
West Columbia	8,150	8,200
Damon Mound	900	1,000
Big Creek	2,100	1,500
Boling	1,950	2,000
Blue Ridge	6,500	5,000
Pierce Junction	10,800	10,800
Humble	1,300	1,400
Goose Creek	6,800	6,950
South Liberty	4,500	5,000
Hull	10,900	11,000
Saratoga	1,100	1,100
Batson	1,400	1,450
Barber's Hill	900	850
Sour Lake	3,500	3,450
Spindletop	39,500	38,600
Orange County	4,150	4,200
Others	2,200	2,300
Total, Coastal Texas	106,650	104,800
Increase		1,850
Coastal Louisiana		
Vinton	4,500	4,600
Sulphur Dome	5,000	6,150
Lockport	4,200	4,400
Sweet Lake	3,800	3,700
Evangeline	900	850
East Hackberry	5,650	4,400
Edgerly	1,100	1,200
Sorrento Dome	2,200	1,200
Others	900	900
Total, Coastal Louisiana	28,250	27,400
Increase		850
Total Gulf Coast	134,900	132,200
Increase		2,700
ROCKY MOUNTAIN		
Wyoming		
Salt Creek	34,850	40,650
Grass Creek	2,450	2,550
Elk Basin	1,300	1,250
Big Muddy	2,750	2,700
Lost Soldier	4,200	4,200
Rock Creek	2,600	2,550
Lance Creek	550	600
Teapot Dome	.....	.....
Others	7,150	6,850
Total, Wyoming	55,850	61,350
Decrease		5,500
Montana		
Cat Creek	1,700	1,750
Sunburst	8,600	8,600
Others	150	150
Total, Montana	10,450	10,500
Decrease		50
Colorado		
Moffat (Craig)	1,050	1,000
Fort Collins	2,600	2,700
Florence	1,250	1,050
Others	3,500	2,650
Total, Colorado	8,400	7,400
Increase		1,000
New Mexico		
Table Mesa	.....	.....
Hogback	200	200
Artesia	1,150	1,150
Rattlesnake	500	500
Others	200	200
Total, New Mexico	2,050	2,050
Total, Rocky Mountain	76,750	81,300
Decrease		4,550
CALIFORNIA		
Santa Fe Springs	36,000	36,000
Long Beach	202,000	197,000
Huntington Beach	55,000	55,000
Torrance	17,000	17,500
Dominguez	11,500	11,500
Rosecrans	6,000	6,000
Inglewood	29,000	29,000
Midway-Sunset	71,500	71,500
Ventura Avenue	53,000	49,500
Seal Beach	35,500	37,000
Others	132,500	132,000
Total, California	649,000	642,000
Increase		7,000
EASTERN		
(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	111,500	109,500
Increase		2,000

Seminole Territory is Ready to Start The Whole Business Over Again

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, July 7

THE quietness this week is the lull before the storm. Within a short time the dolorous business of recording large initial productions of wells in the Seminole territory will have to be gone through with once more.

With the large number of operations under way in that prolific area, the scouts are soon going to have to put lots of mileage on those shiny new Fords to keep up with the completions.

Of course, some of this production is going to be brought in under wraps, with restrictive arrangements of one sort or another operating to keep the total from assuming the heights it once did in that district. Right now the operators, or some of them, at least, are bent on keeping the Little River field from exceeding 125,000 barrels daily, doling out quotas all around which will add up to that amount.

There are also those who turn a wearied eye upon these proceedings, saying they have seen that tried before. Time, that garrulous old man, will tell.

As recorded elsewhere in this number, Little River, or rather, the 7-6 township, has a total of 95 operations, some of them locations and rigs, but most of them drilling. The early part of August will see some of these finished, but as the agreements now run, they will not be produced before Aug. 15.

Then there is a certain amount of pecking away in some other areas adjacent to regularly established pools, centering around wells that opened new spots and were quickly shut in months ago. It is not in the nature of things to bottle them up indefinitely—there are such things as obligations to the lessor. Hence the drilling.

The whole district on a recent date showed a total of 170 operations, exclusive of the St. Louis-Pearson Switch area of Pottawatomie county, where there is a fairish amount of work going on all the time.

The west part of Twp. 8-6 (this is the township that contains the Bowlegs pool) is one spot that soon will ripen into production. This pool was opened the better part of a year ago by the Gypsy Oil Co., who drilled a Wilcox sand producer of consequence in the SE NE of 7-8-6. The closest thing to a completion there since the Gypsy's well was finished and shut in is the Marland Production Co.'s No. 1 Maines, in the NE SE SW of 7-8-6, southwest of the Gypsy well more than a half mile. The Marland well topped the Simpson formation which lies just over the Wilcox at 4,413 feet and at two feet farther down had about 3,000 feet of oil in the hole. The well is being drilled on to the Wilcox. Seven other operations, none of them nearer than a half mile of the discovery, will presently afford information as to the possibilities of this "menace."

Over in township 7-5, Pottawatomie county, which is the township next west of 7-6, where all the Little River excitement is occurring, the wells of the Magnolia Petroleum Co. and T. B. Slick, Inc., continue to demonstrate the beauties of patience.

Magnolia "played" this territory for years, encountering disappointments in this and adjoining townships, but ever seeking the fugitive pool. This company's newest well, the No. 1 G. Fyke, NW SW SE of 20-7-5, clicked along merrily through the week at nearly 5,000 barrels daily.

The same company's No. 1 Hembree, the original Wilcox sand well of this area, which is in the NE NW SE of 19-7-5, turned out 6,100 barrels on July 5, about the figure it has maintained for several days. These two Magnolia wells are about a mile apart. Then there is the Hembree well of T. B. Slick, offsetting the Magnolia's discovery. On July 5 it made 7,020 barrels.

Nobody seems to know who stirred up all this trouble nor has there been answer given to the question, did they push, or were they shoved? At any rate, the pool is there and no shut down efforts are being made. There are 39 operations—a few locations included—in this township and some of them will ripen into completions before long.

For a while it appeared that the test of Sands Petroleum Co. and others, in the NW NE of 4-7-7, next township east of the Little River pool, would open something new, but the test disappointed. At total depth of 4,324 feet it is making more than 300 barrels of oil, upward of 100 barrels of water and the oil is badly cut. It is probable that it will be worth operating, but it will lead to no immediate activity in the vicinity.

Logan county, Okla., the scene of an extremely deep Wilcox campaign, reported a failure this week, supporting the belief that the pay part of the structure will be quite narrow. Roxana's No. 1 Ross-B, in the SE of 19-19N-4W, at the end of the week had 5,000 feet of water in the hole from sand at 6,190-95 feet. Its offset, Roxana's No. 1 Ross-A, SW corner of 20-19-4, made 66 barrels from the Simpson formation at 6,010-29 feet. The two offset a Wilcox sand well drilled by Roxana in the NW corner of Sec. 29, which is making about 500 barrels.

In southern Oklahoma, a "gusher" which attracted considerable attention a week ago, has settled down. This is the No 3 Vorhees, of the Cox-Hamon interests, in the NE SE NW of 23-1S-3W, Carter county, in the Tatums pool. It made 3,200 barrels from a series of sands at 2,284 to 2,750 feet, at its peak. Late in this week it was flowing by heads at intervals of 30 minutes, at the rate of 500 barrels daily. The oil is 27 gravity at 80 degrees F.

In Elk county, southern Kansas, the Minnehoma Oil & Gas Co. and Murphy Oil Co. have opened new production. Their No. 2 Ferguson, NW SW of 3-31S-8E, about five miles west of Grenola, picked up pay at 1,918 feet and with the hole bottomed at 1,934 feet, production amounted to 700 barrels in 17 hours. The oil pay is in the Oswego lime. Gravity is 36 degrees A. P. I. Prairie Pipe Line is laying 15 miles of line to connect with the new producer.

Gasoline Explosion From Firecracker

SYRACUSE, N. Y., July 10.—A fire here on July 4 which wiped out two buildings of the Sun Oil Co., a building occupied by the Gulf Refining Co., and two other buildings, was caused, it is believed by a firecracker. An employe at the Sun Oil Co.'s station, where the explosion occurred, was killed.

As a result of this all oil company plants were ordered closed on the Fourth by city officials and plans were made for a survey of all oil properties here.

Six cars loaded with gasoline belonging to the Sun company, were taken to safety by firemen who ran a locomotive to within a few feet of the burning buildings.

Seminole District Production by Companies and Leases, July 3 and June 27, 1928

BOWLEGS

Company	Farm	S.T.R.	July 3 Wells	July 3 Prod.	June 27 Wells	June 27 Prod.
Amerada	Rascoe	15- 8-6	8	1,435	8	1,450
Atlantic	Baker	1- 8-6	4	245	4	304
Atlantic	Fleet	23- 8-6	3	215	3	245
Atlantic	Grayson	21- 8-6	4	424	4	469
Atlantic	A. Jones	10- 8-6	2	75	2	55
Atlantic	C. Jones	9- 8-6	1	132	2	173
Total Atlantic			14	1,091	15	1,246
Barnsdall	McNac	28- 8-6	1	26	1	26
Barnsdall	Murrow	11- 8-6	4	737	4	748
Total Barnsdall			5	763	5	774
Carter	Bowlegs	15- 8-6	4	1,145	4	1,195
Carter	Burden	23- 8-6	2	225	2	220
Carter	Harjoche	15- 8-6	6	510	6	475
Carter	Hilly	23- 8-6	3	740	3	850
Carter	Jones	11- 8-6	4	780	4	840
Carter	McGeisey	21- 8-6	1	15	1	15
Carter	Walker	15- 8-6	4	480	4	480
Carter	Wise	23- 8-6	11	2,250	11	2,230
Total Carter			35	6,145	35	6,305
Dixie	Culley	11- 8-6	1	105	1	90
Empire	Lacey	15- 8-6	6	466	6	460
Empire	Wise	23- 8-6	2	335	2	310
Total Empire			8	802	8	770
Gypsy	Bowlegs	22- 8-6	1	240	1	7
Gypsy	Bradley	8- 8-6	1	5	1	5
Gypsy	Cumsey	8- 8-6	4	970	4	1,072
Gypsy	Dosar	7- 8-6	1	100	1	100
Gypsy	Grayson	13- 8-6	4	387	4	477
Gypsy	Harjoche	10- 8-6	3	1,745	3	1,647
Gypsy	Jones	11- 8-6	1	5	1	32
Gypsy	Mission	5- 8-6	1	50	1	50
Gypsy	Walker	15- 8-6	8	1,415	8	1,465
Gypsy	Wise	23- 8-6	2	225	2	180
Total Gypsy			26	5,142	26	5,100
I. T. I. O.	Barnett	23- 8-6	2	334	2	328
I. T. I. O.	Barnett-B	24- 8-6	1	177	1	167
I. T. I. O.	Billington	22- 8-6	5	538	5	537
I. T. I. O.	Bowlegs	22- 8-6	10	1,388	10	1,248
I. T. I. O.	Davis	22- 8-6	4	667	4	947
I. T. I. O.	Fay	13- 8-6	9	2,238	9	2,210
I. T. I. O.	Goforth	15- 8-6	12	1,442	12	1,447
I. T. I. O.	Livingston	15- 8-6	10	2,674	10	2,421
I. T. I. O.	Lizzie	13- 8-6	3	575	3	565
I. T. I. O.	Walker	15- 8-6	8	834	8	710
I. T. I. O.	Wilmott	15- 8-6	4	349	4	468
I. T. I. O.	Work	24- 8-6	1	113	1	108
I. T. I. O.	Youngblood	24- 8-6	2	124	2	113
Total I. T. I. O.			71	11,453	71	11,225
Magnolia	Davis	13- 8-6	3	485	3	520
Magnolia	Davis-M	13- 8-6	1	224	1	230
Magnolia	Hammond	10- 8-6	7	586	6	586
Magnolia	Rhodes	12- 8-6	5	2,972	5	3,338
Magnolia	Van Buskirk	9- 8-6	1	291	1	242
Total Magnolia			17	4,558	16	4,916
McCulloch	Bowlegs	22- 8-6	2	420	2	200
Mid-Continent	Baker	10- 8-6	4	1,017	4	1,065
Mid-Continent	Bowlegs	22- 8-6	1	5	1	5
Mid-Continent	Smith	12- 8-6	6	520	6	475
Total Mid-Continent			11	1,542	11	1,545
Minnehoma	Bowlegs	15- 8-6	4	254	4	203
Prairie	Gahagan	23- 8-6	4	300	4	305
Prairie	Harber	10- 8-6	8	2,385	8	2,345
Prairie	Jones	11- 8-6	4	420	4	370
Prairie	Templeton	12- 8-6	6	2,225	6	2,310
Prairie	Whitney	23- 8-6	4	475	4	425
Total Prairie			26	5,805	26	5,755
Pure	Reed	14- 8-6	14	3,836	14	3,494
Pure	Strother-D	14- 8-6	4	265	4	628
Pure	Strother-F	10- 8-6	5	1,764	5	1,842
Total Pure			23	5,865	23	5,964
Roxana	Taylor	16- 8-6	5	117	5	125
Shaffer	Lacy	14- 8-6	3	350	3	280
Sinclair	Bowlegs	22- 8-6	1	50	1	70
Sinclair	Cumsey	10- 8-6	4	2,267	4	2,455
Sinclair	Ellen	11- 8-6	7	990	7	1,085
Sinclair	Harjo	14- 8-6	3	1,040	3	500
Sinclair	Jones	10- 8-6	7	977	7	1,098
Sinclair	Taylor	10- 8-6	4	1,611	4	1,448
Sinclair	Taylor-W	10- 8-6	3	1,121	3	1,170
Sinclair	Walker	22- 8-6	4	822	4	867
Total Sinclair			33	9,078	33	8,691
Texas	Reed	14- 8-6	11	1,745	11	1,525
Tidal	Grayson	13- 8-6	4	360	4	510
Tidal	Harjoche	10- 8-6	6	1,475	6	1,450
Total Tidal			10	1,835	10	1,960
Twin State	Jones	11- 8-6	3	35	3	44
TOTAL BOWLEGS			315	58,339	315	58,214

EARLSBORO

Amerada	Anderson	15- 9-5	2	970	2	940
Amerada	Cowden	4- 9-5	7	1,670	7	1,480
Amerada	Rogers	3- 9-5	2	30	2	525
Total Amerada			11	2,670	11	2,945
Atlantic et al	Foreman	18- 9-5	1	155	1	155
Barnsdall	Brown	10- 9-5	4	2,655	4	3,193
Barnsdall	F. Bruner	2- 9-5	2	858	2	764
Barnsdall	N. Bruner	10- 9-5	3	796	3	821
Barnsdall	Cudjo	14- 9-5	1	25	1	25
Barnsdall	D. Davis	11- 9-5	3	291	3	276
Barnsdall	J. Davis	11- 9-5	4	1,261	4	1,086
Barnsdall	M. Davis	11- 9-5	3	87	3	88
Barnsdall	Gibson	9- 9-5	8	2,788	8	2,607
Barnsdall	Hern	15- 9-5	1	2	1	3
Barnsdall	Ingram	1- 9-5	8	2,203	8	2,781
Barnsdall	Pack	10- 9-5	4	187	4	198
Barnsdall	Peter	10- 9-5	4	189	4	256
Barnsdall	Sango	1- 9-5	5	5,607	5	5,559
Barnsdall	Sebolka	15- 9-5	1	409	1	462
Barnsdall	H. Sullivan	11- 9-5	1	4	1	14
Barnsdall	Sull-Harjo	10- 9-5	2	44	2	12
Barnsdall	Watsutke	12- 9-5	4	1,742	4	1,464
Total Barnsdall			58	19,148	58	19,338
Carter	Davis	13- 9-5	2	860	2	325
Carter	Sango	1- 9-5	4	620	4	685
Total Carter			6	1,480	6	1,095
Continental	Kays	2- 9-5	2	135	2	0
Continental	Spencer	12- 9-5	4	920	4	1,355
Total Continental			6	1,055	6	1,355
Crosbie	Bryant	9- 9-5	2	18	2	0
Empire	Barker	12- 9-5	1	365	1	360
Empire	Edmundson	3- 9-5	3	90	3	80
Total Empire			4	455	4	440
Gypsy	Bruner	10- 9-5	4	2,677	4	2,775
Gypsy	B. Carter	11- 9-5	8	4,242	9	3,415
Gypsy	Earl	16- 9-6	1	5	1	17
Gypsy	Hunick	5- 9-5	1	2,080	1	2,170
Gypsy	Noble	12- 9-5	4	2,145	4	2,360
Gypsy	Peter	10- 9-5	3	355	3	30
Gypsy	Sango	1- 9-5	5	2,750	5	2,750
Gypsy	State	16- 9-5	4	1,110	4	1,030
Total Gypsy			30	15,364	31	14,547
Independent	Bruner	10- 9-5	3	410	3	397
Independent	Sullivan	10- 9-5	2	96	2	114
Independent	Knapp	8- 9-5	3	2,129	3	2,190
Indep.-Margay	Gaines	11- 9-5	4	760	4	745
Total Independent			12	3,395	12	3,446
Magnolia	Bryant	9- 9-5	6	953	6	1,187
Magnolia	Cowden	4- 9-5	4	20	4	70
Magnolia	Edmundson	3- 9-5	3	25	3	30
Magnolia	Holmsley	11- 9-5	7	500	7	623
Magnolia	Hyde	13- 9-5	1	1,778	1	1,584
Magnolia	Ingram	10- 9-5	1	25	1	25
Magnolia	Lena	10- 9-5	3	70	3	70
Magnolia	Seay	12- 9-5	9	2,802	9	3,548
Magnolia	Simpson	10- 9-5	3	105	3	134
Magnolia	Sparks	11- 9-5	7	912	7	697
Magnolia	Sullivan	12- 9-5	3	100	3	90
Total Magnolia			47	7,290	47	8,058
Mid-Continent	McCumber	9- 9-5	7	90	7	85
Mid-Kansas	Anderson	14- 9-5	3	90	3	90
Phillips	Dunnaway	14- 9-5	1	30	1	36
Phillips	Gram	9- 9-5	2	15	2	0
Total Phillips			3	45	3	36
Prairie	Baker	24- 9-5	1	50	1	50
Prairie	Davis	13- 9-5	5	3,185	5	3,370
Prairie	C. Graham	3- 9-5	2	15	2	5
Prairie	O. Graham	10- 9-5	4	1,290	4	1,065
Prairie	Stidham	11- 9-5	13	3,480	13	3,695
Total Prairie			25	8,020	25	8,185
Roxana	Bayliss	17- 9-5	1	14	1	12
Roxana	Hearn	13- 9-5	1	189	1	112
Roxana	Spencer	12- 9-5	2	937	2	1,020
Total Roxana			4	1,140	4	1,144
Shaffer	Clark	1- 9-5	4	865	4	667
Sinclair	Foreman	18- 9-5	1	15	1	15
Sinclair	Hollins	12- 9-5	1	50	1	50
Sinclair	Sango	2- 9-5	3	3,620	3	3,800
Total Sinclair			5	3,685	5	3,865
Skelly et al	Sherry	6- 9-5	1	3,693	1	3,775
Skelly	Spencer	12- 9-5	1	560	1	595
Total Skelly			2	4,253	2	4,370
Superior	Walker	2- 9-5	1	3,784	1	3,807
Texas	Anderson	2- 9-5	8	650	8	625
Texas	Brown	10- 9-5	8	1,485	8	1,500
Texas	Rogers	5- 9-5	4	3,085	4	3,270
Texas	Wilmott	10- 9-5	7	600	7	620
Total Texas			27	5,770	27	5,813
Tidal	Watkins	9- 9-5	7	3,260	7	3,210
Twin State	Barker	12- 9-5	2	68	2	105
Twin State	Hern	2- 9-5	4	1,105	4	1,165
Total Twin State			6	1,173	6	1,270
TOTAL EARLSBORO			272	83,255	273	83,875

LITTLE RIVER

Amerada	Nitey	2- 7-6	3	1,640	3	1,510
Amerada et al	Fore	35- 8-6	2	440	2	300
Total Amerada			5	2,080	5	1,810
Barnsdall	Hotulke	22- 7-6	1	33	1	36
Blackwell	Nitey	35- 8-6	6	2,357	6	2,830
Carter	Fish	36- 8-6	6	455	6	825
Carter	Jackson	11- 7-6	2	1,780	2	1,800

(Continued on Page 43)

Seminole District Production by Companies and Leases, July 3 and June 27, 1928

(Continued from Page 42)

Company	Farm	S.T.R.	July 3 Wells	July 3 Prod.	June 27 Wells	June 27 Prod.
Carter	Larney	24– 7–6	1	100	1	100
Carter	Wilson	12– 7–6	1	100	1	100
Total Carter			10	2,435	10	2,000
Continental	Cosar	36– 8–6	4	1,790	4	1,770
Gypsy	Brown	33– 8–6	1	50	1	50
Gypsy	Cosar-W		1	495	1	757
Gypsy	Conard	22– 7–6	1	100	1	100
Gypsy	Cosar-M	25– 8–6	1	157	1	140
Gypsy	Campbell	36– 8–6	2	212	2	215
Gypsy	Denmark	11– 7–6	1	100	1	100
Gypsy	Nungee	1– 7–6	1	30	1	30
Gypsy	Hulhoke	14– 7–6	1	100	1	100
Gypsy	Pottie	35– 8–6	4	1,338	4	1,362
Gypsy	Renton	11– 7–6	3	2,055	3	2,390
Total Gypsy			16	4,637	16	3,517
Independent	Harris	23– 7–6	2	200	2	200
Independent	Davis	2– 7–6	3	1,765	3	2,110
Total Independent			5	1,965	5	2,310
I. T. I. O.	Campbell	1– 7–6	1	314	1	46
I. T. I. O.	Dungan	35– 8–6	3	1,334	3	1,431
I. T. I. O.	MA House	1– 7–6	1	26	1	67
I. T. I. O.	WE House	1– 7–6	1	81	1	27
I. T. I. O.	WE House-B	2– 7–6	4	1,593	4	1,668
I. T. I. O.	Hull	26– 8–6	2	2,127	2	2,135
I. T. I. O.	Jackson	1– 7–6	3	1,226	3	1,307
I. T. I. O.	McCulla	1– 7–6	3	624	3	624
I. T. I. O.	Nitey	2– 7–6	6	684	6	699
I. T. I. O.	Phoebe-A	36– 8–6	3	613	3	602
I. T. I. O.	Phoebe-B	36– 8–6	4	184	4	161
I. T. I. O.	Reed	1– 7–6	1	51	1	47
I. T. I. O.	Soketheche	1– 7–6	3	786	3	780
Total I. T. I. O.			35	9,643	35	9,594
Magnolia	Cruse	2– 7–6	4	1,366	4	1,416
Magnolia	Dixon	31– 8–7	1	5	1	0
Magnolia	Harjo	14– 7–6	1	2,455	1	65
Magnolia	Pottie	35– 8–6	3	756	3	504
Total Magnolia			9	4,682	9	1,985
Mid-Continent	Bruner	11– 7–6	1	100	1	100
Mid-Cont.	Smith	5– 7–7	1	70	1	35
Mid-Cont.	Wadsworth	36– 8–6	7	735	7	775
Total Mid-Continent			9	905	9	910
W. B. Pine	Hovecha	26– 8–6	2	1,330	2	580
Pine et al	Pottie	36– 8–6	2	460	2	620
Total Pine			4	1,790	4	1,200
Pure	Harjo	11– 7–6	1	2,625	1	2,556
Prairie	Chilcoat	25– 8–6	3	1,465	3	1,035
Prairie	Dungan	35– 8–6	1	55	1	70
Prairie	House	2– 7–6	4	970	4	1,045
Total Prairie			8	2,590	8	2,150
Reiter-Foster	Bunyard	14– 7–6	1	100	1	100
Roxana	Caesar	11– 7–6	1	239	1	229
Roxana	Hotulke	23– 7–6	1	102	1	102
Total Roxana			2	341	2	331
Shaffer	Narcome	36– 8–6	1	60	1	60
Sinclair	Cosar	36– 8–6	3	2,830	3	2,960
Sinclair	Teewee	14– 7–6	1	100	1	100
Total Sinclair			4	2,930	4	3,060
Snowden-McS.	Tiger	13– 7–6	1	0	1	0
Superior	Soketheche	1– 7–6	1	10	1	10
Texas	Coker	1– 7–6	3	1,640	3	1,710
Texas	Hotulke	23– 7–6	1	115	1	105
Total Texas			4	1,755	4	1,825
Tidal	House	1– 7–6	3	655	3	650
Tidal	Johnson	1– 7–6	1	40	1	30
Total Tidal			4	695	4	680
Twin State	Lowe	25– 8–6	1	190	1	30
TOTAL LITTLE RIVER			134	43,613	134	41,716

SUMMARY

TOTAL BOWLEGS	**315**	**58,339**	**315**	**58,214**
TOTAL EARLSBORO	**272**	**83,255**	**273**	**83,875**
TOTAL SEMINOLE	**300**	**51,927**	**300**	**50,721**
TOTAL SEARIGHT	**67**	**11,910**	**68**	**12,956**
TOTAL LITTLE RIVER	**134**	**43,613**	**134**	**41,716**
GRAND TOTAL SEMINOLE AREA	**1,088**	**249,044**	**1,090**	**247,482**
Avg. per well		229		227

Completions in Oklahoma and Kansas, Week Ended July 7, 1928

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	2	NEc SW SE 19-1-3 W	2831-3330	150
Simpson-Fell	2	SWc SE SE 19-1-3 W	2914-3382	72
Magnolia	4	SEc NW NW 23-1-3 W	2380-2464	157
Sinclair-Gypsy	2	SEc NE 29-2-3 W	2602-2610	10¼M
Humble	1	NWc SW SW 34-1-3 W	T.D. 3300	OWD Dry

Cotton County

Jenkins et al	1	NEc SW 6-2-10 W	T.D. 2158	Dry
Jenkins et al	3	NEc SW SE SE 34-1-10 W	2175-2199	25

Creek County

Markham	6	SEc NW 20-17-7 E	2766-2779	45
Tidal	1	NEc SW 20-17-7 E	2772-2797	40
Twin State	1	SWc NE 20-17-7 E	2747-2773	120
Tibbens	4	NEc SW 4-18-12 E	2059-2065	4M
Roberts	1	SWc 2-15-10 E	2549-2595	10
Savoy	1	NEc NW NE 25-19-9 E	T.D. 2868	Dry
Irelan et al	1	NWc SE 16-17-11 E	T.D. 2239	Dry

Grady County

Simpson-Fell	1	SWc SE SE 36-5-7 W	T.D. 2443	Dry
Magnolia	7	NWc SW NE 35-5-8 W	T.D. 2391	50M
Meridian	3	NWc NE NW 2-4-8 W	T.D. 2122	12M
Kahl et al	1	SEc NE 14-4-8 W	T.D. 2350	30M
Carter	6	NEc NW NE 8-3-5 W	1811-1825	100

Kay County

Ingram et al	1	CW½ SW SE 31-27-2 E	586-599	3M
Parrish et al	3	SEc NW 9-27-1 E	T.D. 1615	Dry

Logan County

Blackford	1	CSL N½ SE 28-16-1 W	T.D. 1675	Dry
Bu-Vi-Bar	1	C SW 12-15-1 W	T.D. 5793	Dry

Marshall County

Smith	1	NWc SW SW NE 24-5-5 E	695-706	30

Muskogee County

Buckles et al	8	NEc NW SE 8-15-15 E	1669-1673	30
Duga et al	1	NWc SE 19-15-19 E	857-883	5
Peterson	8	CS½ SE SE 18-14-17 E	1338-1369	10
Tidal	13	CEL SW SW 5-14-18 E	1362-1383	10
Graves et al	4	CSL SE NW 5-13-16 E	1860-1879	50
Shaffer-Haflin	1	SEc 36-15-18 E	T.D. 675	Dry
Scotch	2	CNL SW NE 2-14-18 E	T.D. 1209	Dry
Robinson Bros.	3	NEc SE NE 7-14-19 E	T.D. 697	Dry

Okfuskee County

McCullough	1	SWc NW 31-11-11 E	T.D. 4020	Dry

Okmulgee County

Goodman et al	5	CEL SE SE 36-16-14 E	T.D. 2013	OWD Dry
Roxaline	5	CSE NW 21-14-14 E	T.D. 2400	Dry
Roberts	2	SEc NW NE 22-15-11 E	2095-2139	25
Eagle Pitcher	1	SEc NE NE 32-13-12 E	768-788	1M
Kirkland-Son	2	CNL S½ NE SW 17-15-13 E	1307-1447	14
Kirkland-Son	1	SWc SE SW NE 17-15-13 E	1394-1425	8
Wheeler	1	NEc NW 32-15-13 E	1996-2005	5M
Wallace	10	NEc NW SE 14-14-14 E	1703-1723	25
Lambert	7	CNL NE SW 7-13-15 E	1226-1247	¾M
Pine	1	SEc NE NE 30-12-13 E	1208-1215	OWD 1M

Osage County

Kewanee	7	NEc SE SW 21-27-6 E	2909-2976	456
Phillips	1	SWc SE 21-27-6 E	2929-2985	511
Oliphant et al	1	CNL SW 26-23-9 E	2499-2524	20
Silurian	51	NWc SE NE 18-23-12 E	1650-1721	10
Tidal Osage	36	SEc NW 34-22-10 E	2355-2357	OWD 2265
Okla. Nat'l	784	SWc NW SW 11-21-10 E	1550-1565	¾M
Leahy et al	1	NEc SE 9-25-9 E	T.D. 1805	Dry

Pawnee County

Company	Well No.	Location	Depth	Init. Prod.
Fisher-Wallace	4	SWc NE NE SE 30-20-9 E	1078-1105	10

Pottawatomie County

Boles	1	SEc NW 25-7-3 E	T.D. 4220	Dry
Amerada	1	SWc SE NE 1-8-4 E	4110-4429	60
Pierce	2	SWc SE NE 25-7-3 E	3896-3916	21
Gypsy	4	NWc SE NE 19-7-4 E	3776-3876	852
Indep.-Darby	2	SEc NE NE 23-7-4 E	4120-4274	1635
Magnolia	1	NWc SE 19-7-5 E	4094-4122	OWD 6327
Slick	1	NEc NW SE 19-7-5 E	4105-4126	7165

Seminole County

Texas	4	SEc SW SE 2-9-5 E	4530-4542	185
Gypsy	1	NWc NE 36-8-6 E	4243-4251	757
Carter	1	SEc SW SW 7-6-8 E	2831-2891	70&13M
Mid-Continent	12	NWc SW SE 7-5-8 E	2680-2685	1100
Sunray	1	NEc SE SW 7-5-8 E	2660-2692	510
Gilcrease	2	NWc NE 18-5-8 E	2616-2700	350
I. T. I. O.	7	NWc SW NE 1-7-6 E	T.D. 4955	Dry

Sequoyah County

Citizens	?	SEc N½ NE SW 33-12-27 E	T.D. 1215	Dry

Stephens County

Pace et al	1	SWc SE 35-1-8 W	T.D. 2478	Dry
Owen-Wood	10	NEc SE SE NW 12-2-8 W	T.D. 1617	Dry
Clark-Cowden	1	SEc NE SW 22-2-7 W	T.D. 2500	Dry
Hawks-Ware	2	NWc NE SE 11-3-6 W	T.D. 380	Dry
Coline	3	NEc NW NE 31-1-8 W	1617-1680	2M
Winkler et al	1	SEc NW 31-1-8 W	1928-1929	15
Magnolia	6	NEc SW NE 34-1-8 W	1662-1678	35
Pace et al	4	SWc SE SE NE 12-2-8 W	1535-T.D.	312
Pace et al	5	SWc SE NE 12-2-8 W	1565-1574	150
Magnolia	5	SEc NW 13-1-4 W	2355-2836	260
Prairie	2	NEc SW SW 7-2-7 W	1520-1562	35

Tillman County

Pearson et al	1	SWc 3-5-15 W	T.D. 2015	Dry

Tulsa County

Lee	1	SEc NW NE 6-19-10 E	1913-1936	6
Altitude	4	NWc SW SW SW 30-19-13 E	1472-1476	2½M
Sheridan	1	NWc SW 10-16-12 E	1986-2018	OWD 30

Wagoner County

Crichton	2	NEc NW 22-18-17 E	T.D. 800	Dry
Brophy-Lumel	1	SWc 17-16-15 E	T.D. 2185	Dry
Mitchell	4	NWc SW 35-16-15 E	T.D. 1948	Dry

KANSAS

Barber County

Shaffer	1	C SE SE 2-33-13 W	T.D. 3980	Dry

Cowley County

Shawver et al	1	NWc 10-34-3 E	T.D. 3802	Dry
Maverick	2	SE NW NW 22-34-3 E	T.D. 635	Dry

Osborne County

Liggett et al	2	SW SE NW 34-10-15 W	T.D. 3365	Dry

Russell County

Keys	14	SE SW NE 32-13-15 W	3062-3106	250
Day	2	SEc NE 32-13-15 W	3328-3331	600
Day	1	SW SE NE 32-13-15 W	3331-3335	500

Sumner County

Wasson et al	10	CEL W½ SE SW 14-32-2 E	1523-1644	400
Roxana	2	SEc NE NW 14-32-2 E	2037-2090	10
Roxana	11	NW NE NE 14-32-2 E	2042-2095	40
Roxana	5	SE NW NW 36-31-2 E	1924-1952	20
Imo	1	NW NE SW 21-33-2 E	T.D. 3710	Dry
Ramsey Bros. et al.	1	NWc SE 22-32-2 E	T.D. 3243	Dry

Completions in N. E. Central, West, Panhandle and North Texas, Week Ended June 30, 1928

NORTH AND EAST CENTRAL

Brown County

Company	Well	Farm	Location Survey	Depth	Init. Prod.
Love-Michel	2	Lawson	King	T.D. 1342	Dry
Curry	3	Chambers	Logan	T.D. 1300	Dry
Scrivnor et al	1	Suttles	Mitchell	T.D. 1270	Dry
Humble	1	Lewis	Mathews	T.D. 1695	Dry
Johnson	1	Muss	SA&MG	T.D. 1429	Dry
Danich et	1	Payne	HT&B	T.D. 1340	Dry
Gordon-White	1	Mandlin	Mosley	T.D. 1175	Dry
Palmer-Metts	1	Childers	HT&B	T.D. 1400	Dry
Baker	1	Henderson	Winn	T.D. 640	Dry
Heatley	1	Wilson	Osborn	T.D. 803	Dry
Kane Prod	4	Hickman	Benson	1275-1291	225
Midland	5	Butler	Benson	1270-1289	250
Anna Belle	4	Hickman	Benson	1262-2182	50
Humble	16	Hodnett	Harris	1194-1221	40
Humble	13	Kilgore	Delgado	1146-1166	25
Bradstreet et al	12	Stout	Smith	1157-1191	30
Smith	3	Moore	Bailey	1107-1127	2½M
Cranfill-Reynolds	6	Eubanks	Mitchell	1256-2159	100
Cranfill-Reynolds	7	Eubanks	Mitchell	1252-1268	400
Bradstreet et al	2	Eubanks	Mitchell	1221-1237	15
Sinclair	2	Eubanks	Mitchell	1203-1221	128
Sinclair	3	Eubanks	Mitchell	1232-1252	250
Jay Hawk	7	Boyson	Williams	1217-1230	25
Wheelock-Collins	9	Smith	SA&MG	1327-1340	10
Moore	1	Munselle	Armlick	1170-1180	35
Henshaw	16	Bush	Kenney	1084-1095	300
Clark Buffalo	5	Perry	Kenney	1068-1075	40
Humble	4	Bylor	T&NO	1323-1330	120
Charter	6	Bylor	T&NO	1336-1352	50
Milham	1	Rosser	Cross	1293-1301	240

Callahan County

Sterling	3	Beasley	D&DA	710-718	8
Wentz	1	Williams	D&DA	T.D. 685	Dry
Sterling	2	Wheeler	D&DA	T.D. 707	Dry
Humble	1	Herd Bros.	BBB&C	T.D. 2110	Dry
Swovelord	3	Shockelford	D&DA	T.D. 711	Dry
Mortimor et al	1	Hickman	I&GN	T.D. 554	Dry

Coleman County

Barbre-Ross	1	McWilliams	Childress	T.D. 3009	Dry
Moutray	1	Miller	Perry	T.D. 3627	Dry
Continental et al	1	Smith	GH&H	1615-1627	92
Continental et al	2	Overall	GH&H	2210-2220	3.7M
Charter	1	Crump	Scott	1857-1869	125
Taver-McKanna	1	Moody	Scott	1852-1861	108
Massey	1	Welk	Martinez	1500-1503	5
Cunningham et al	3	Jennings	Lipscomb	1140-1165	220
Cunningham et al	2	Jennings	Lipscomb	1178-1197	135
Derby	3	Jennings	Lipscomb	1176-1197	140
Derby	5	Jennings	Lipscomb	1171-1192	70

Eastland County

Applegate et al	1	Barker	H&TB	T.D. 835	Dry
Mays et al	1	Garrett	Miser	T.D. 1550	Dry
Amerada	1	Gibson	Puckett	T.D. 1130	Dry
Hensleit et al	1	Qualls	BBB&C	T.D. 802	Dry
Republic Prod	3	Sneed	McLennon Co. Sch. Ld.	1220-1228	25
Schimmel Prod	2	Earnest	H&TC	1490-1519	5
Mays et al	1	Marton	Lyman	1432-1440	.14M
Hoffman-Page	1	Foster	H&TC	1207-1220	.89M

McCulloch County

McLean-Jamison	1	Wirt	H&TC	935-936	3.7M

Runnels County

Marland	1	Williams	Rocah	T.D. 3060	Dry

Stephens County

McGinley et al	2	Mitchell	T&P	T.D. 3245	Dry
Gulf Prod	1	Golshon et al	T&P	1954-1958	20M
Eidson et al	3	Houston	T&P	1995-2018	10
McLester	1	Thorpe	Nobles	3265-3285	35
Phillips	1	Burke	T&P	1960-2041	25&2½M

NORTH TEXAS

Archer County

Stumpf-Hines	1	Wallace	DCSL	1001-1013	105
Rose	2	White	Denton Co. Sch. Lds.	1038-1046	8
Young	2	Taylor	SP	T.D. 1766	Dry
Bridwell	2	Wilson	Geraldine	T.D. 1586	Dry
Kelleher-United Prod.	1	Andrews	Carson	T.D. 1505	Dry
Minich-Dale	1	Hutchinson	ATNCL	T.D. 1202	Dry
Hutchins	3	Hutchins	ATNCL	T.D. 1442	Dry
Lewis-Barnsdall	1	Abercrombie	Harris	T.D. 1586	Dry
Consolidated	1	Wright	TE&L	T.D. 1465	Dry
Consolidated	1	Brown	TE&L	T.D. 1503	Dry
Archer et al	1	Garvey	BBB&C	T.D. 811	Dry

Cooke County

Oil Operat. Trust	10	Kleiss	Twist	1608-1635	10
Gain-McGaha	3	Chaffin	Reed	T.D. 1903	Dry

King County

Humble	1	Pitchford Co.	Gibson	T.D. 4035	Dry

Wichita County

Hammond	1	Manger	Kemp	1750-1753	65

Wilbarger County

Phillips	2	Waggoner	H&TC	1860-1874	4
Phillips	3	Waggoner	H&TC	2289-2312	174
Cosden	21	Waggoner	H&TC	2287-2297	124
Waggoner	1	Waggoner	H&TC	2351-2366	280
Waggoner	1	Waggoner	H&TC	2419-2426	3330
Barkley-Meadows	5	Waggoner	H&TC	2346-2352	69
Texas	2	Waggoner	MEP	2355-2372	240
Cockran-Marland	1	Waggoner	H&TC	1910-1919	105
Silkwood et al	2	Harrold	H&TC	T.D. 900	Dry
Lowery	4	Deep et al	H&TC	T.D. 870	Dry
Consolidated et al	1	Waggoner	H&TC	T.D. 2044	Dry
Manhattan	1	Waggoner	H&TC	T.D. 2752	Dry

Young County

Christie-Sharp	1	Dunagen	TE&L	T.D. 1110	Dry
Byron	2	Edwards	TE&L	T.D. 1001	Dry
Pennell et al	1	Keen	Compere	T.D. 750	Dry
Ford et al	1	Barnett	Sargent	T.D. 600	Dry
Chancheller et al	1	Grubbs	TE&L	T.D. 502	Dry
Pennell et al	11	Boone	BBB&C	470-495	8

PANHANDLE

Gray County

Texas	2	Thut	H&GN	2768-2795	268
Texas	2	Williams	ACH&B	2725-2734	753
Hardendrof Drlg	1	Henderson	H&GN	2515-2520	6M

Wheeler County

Wishkamper et al	1	Gooch	H&GN	1438-1488	45M

WEST TEXAS

Fisher County

Sinclair	1	Steel	H&TC	3209-3225	600

Glasscock County

Marland-Texon	1	Settles	W&NW	1213-3504	175

Howard County

Green	1	Clay	W&NW	1773-1780	100
Merrick-Bristow	5	Hooks	W&NW	1869-1884	75

Reagan County

Roxana	1	Univ.	Univ.	T.D. 2826	Dry

Completions in North Louisiana and Arkansas, Week Ended July 5, 1928

Louisiana—Webster Parish—Spring Hill

Company	Well	Location	Depth	Yield
Bethany Oil & Gas Co.	Atkins No. 1	32-23-9	2678	8M gas

Cotton Valley—Webster Parish

Palmer Corp.	Mixon No. 1	22-21-10	4729	3M gas
Ohio Oil Co.	Bodcaw Lbr. Co. No. 39	14-21-10	4734	1,900 bbls.

Bossier Parish—Elm Grove

H. S. Goodwin, Trustee	McDade No. 2	36-17-13	898	3M gas

East Carroll Parish

Texas Company	Boone Live Oak Pltg. No. 1	11-20-12E	3505	dry, aband.

Winn Parish

Sackrider, Trustee	Nelson No. 1	26-11-1E	1590	salt water, abd.

East Texas—Panola County

S. H. Gardner et al.	G. E. Brumlett No. 1 B. C. Jordan HRS	2286		5M gas

Arkansas—Smackover

Frank B. Wood, Trustee	Turnage No. 1	34-15-16	2058	18 bbls.

Union County—Rainbow City

H. L. Hunt	Gregory No. 2	10-17-14	3210	361 bbls.
C. E. Murdock et al.	Dumas No. 1	11-17-14	3224	460 bbls.
Ohio Oil Co.	T. E. Adams No. 1	11-17-14	3379	salt water abd.
Pure Oil Co.	W. E. Gregory Estate No. 2	15-17-14	3202	490 bbls.

Drilling Operations in Oklahoma and Kansas, Week Ended July 7, 1928

	July 7 Loc.	Rigs	Drg.	S.D.	Week Ended Total	June 30 Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Burbank	2	2	13	...	17	3	1	14	...	18
Other Osage	7	14	15	2	38	9	13	14	2	38
Bristow-Cushing	3	3	29	7	42	5	4	27	8	44
North Oklahoma	5	9	48	27	89	7	10	50	26	93
South Oklahoma	12	10	83	29	134	11	9	98	31	149
Muskogee	...	8	54	17	79	...	13	45	22	80
Okmulgee-Bristow	11	29	72	24	136	11	32	66	28	137
Seminole Dist	30	63	249	20	362	34	108	189	13	344
Total Oklahoma	70	138	563	126	897	80	190	503	130	903
KANSAS	...	80	134	82	296	...	75	147	66	288
GRAND TOTAL	70	218	697	208	1,193	80	265	650	196	1,191

Drilling Operations in Texas, Month Ended June 15, 1928

	June 15 Loc.	Rigs	Drg.	S.D.	Month Ended Total	May 19 Loc.	Rigs	Drg.	S.D.	Total
TEXAS										
Central	...	83	193	243	519	...	103	238	159	500
Panhandle	...	45	78	69	192	...	65	89	64	218
N. Central	...	75	105	23	203	...	73	115	21	209
West	...	161	251	120	532	...	106	203	163	472
Laredo	...	1	25	19	45	...	1	25	19	45
Total Texas	...	365	652	474	1,491	...	348	670	426	1,444
NEW MEXICO	...	10	23	23	56	...	8	22	21	51
GRAND TOTAL	...	375	675	497	1,547	...	356	692	447	1,495

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended July 7, 1928

OKLAHOMA

Carter County

Company	Well No. Farm	Location
Magnolia	6-Bumpass	NWc SE 33-1-3 W
Roxana	1-Eason	NWc SW NW 6-2-3 W
Roxana	3-Lyles	SEc SW NW 11-2-3 W
Schermerhorn et al.	4-Lyles	SWc SE NW 11-2-3 W
Franklin	2-Carpenter	NWc NE SW 11-2-3 W

Creek County

Bailey et al	1-Thompson	NWc NE NE 32-19-9
Kennedy-Horner	4-Sapulpa	NWc NE SW 24-18-11 OWD
Dedman et al	1-Brown	SWc NE NE 13-17-9
Henry-Avers	4-Harris	C SE SE 12-17-10
Herrod-George	?	NWc SE SW 12-17-11
Wilson	2-Ashbury	NEc 1-15-10

Cotton County

Moore et al	1-Moore	NEc SW 2-2-10 W

Grady County

Okla. Nat'l	4-Sanford	SWc NE SW 23-5-8 W
Okla. Gas Utilities	3-School Land	NWc 36-5-8 W
Watchorn	3-Huling	NWc SW NW 13-4-8 W
Wrightsman	1-Short	C SE SW 25-4-8 W
Malernee	1-Brown	SEc NW SW 8-3-7 W

Muskogee County

Summers et al	2-Jefferson	NEc SW SW NE 33-15-15 E
Hesel-McQuown	1-Stranks	SWc SE NE 31-15-19 E
Sterling et al	2-Tiger	NEc SE NW NE 1-14-18 E
Bramer et al	1-Callahan	CEL NW NW 18-14-19 E
Ransom et al	1-Robinson	CEL NW NE 1-13-18 E
Glasco et al	1-Dean	SWc NE NW 7-13-18 E

Okmulgee County

Kirkland-Son	1-Grayson	C SE SW 18-15-13 E
Kirkland-Son	1-Depriest	C NE NW 19-15-13 E
Lampton	1-Bell	NWc NE SE 20-15-13 E
Texas	9-Severs	NWc SW NE 20-15-14 E
Gardner	1-Simmer	SEc SW SW 9-14-13 E
Wallace	1-Colbert	SEc SW NE 14-14-14 E OWD
Lambert	1-Steiger	C NW SW 7-13-15 E
Harsha et al	3-Bruner	SEc SW NE 34-16-14
Kingwood	1-Bright	SEc SW SE 29-15-12
Martin et al	1-Hawkins	NEc NW NW 9-11-12

Osage County

Lewis Prod. et al	1-	NWc 23-26-6
Continental	1-	SWc SE 32-24-8
Branstetter et al	1-	SWc NW 14-22-11
Osage Synd	13-	SWc NW 7-21-9
Moore-Ohio Osage	?-	CSL N ½ SW 9-21-9
Moore-Ohio Osage	?-	CNL S ½ SW ¼ 9-21-9
Moore-Ohio Osage	?-	SWc NE SW 9-21-9

Payne County

Gardner et al	1-Falk	C NE SE 12-19-1 W

Pontotoc County

Westheimer-Daube	1-Futeshcha	SWc SE NW 15-4-7 E
Portland Cement	2-Mathews	C NW SW 24-4-7 E

Pottawatomie County

Independent	2-Deckard	SEc NE NE 19-7-4 E
Healdton	1-Thompson	SWc NW NW 20-7-4 E
Interocean	2-McGee	SWc NW SE 23-7-4 E
Westheimer-Daube	4-Freid	SEc NW 24-7-4 E
Gypsy	1-Collins	NWc NE SE 25-7-4 E
Independent	5-Youts	SWc SE SE 19-7-5 E
Magnolia	4-Hembree	SWc SE 19-7-5 E
Sinclair	2-Kitchee	SWc 19-7-5 E
Slick	4-Hembree	SEc SW SE 19-7-5 E
Slick	2-Youts	SEc SW 19-7-5 E
Magnolia	1-Fyke	SWc NW 20-7-5 E
Magnolia	1-Youts	NWc SW 20-7-5 E
Gypsy	1-Pamahma	NWc NE NE 30-7-5 E
Phillips	1-Stahl	NWc NE 30-7-5 E
Phillips	2-Stahl	NEc NW NE 30-7-5 E
Slick	1-Lynn	NEc NW 30-7-5 E

Seminole County

Greis	1-Cyrus	SEc NE NW 13-9-7 E
Ramsey	3-Bowlegs	C SW NW 31-8-8 E
Mid-Continent	2-Harjo	NEc SE NE 14-5-7 E
Ramsey	1-Factor	NWc NE NE 25-5-7 E
Mid-Continent	14-Fleet	SWc NW SE 7-5-8 E
Sinclair	2-Amos	SEc NE SW 7-5-8 E
Pure	1-Lindley	SEc SW SE 18-8-5 E
Texas	1-Brooks	SWc NW 25-8-6 E
Pine	3-Hoyecha	NEc SW SE 26-8-6 E
Pine	4-Hoyecha	SWc NE SE 26-8-6 E
Pine	5-Hoyecha	SEc NE SE 26-8-6 E
Mid-Continent	3-Bruner	SWc SE SE 11-7-6 E
Blackwell	2-Talley	SWc 14-7-6 E
Magnolia	2-Harjo	NWc NE NE 14-7-6 E
Barnsdall	2-Williams	SEc NW NE 15-7-6 E
Omar-Commercial	1-Patton	NWc NE SW 31-7-6 E

Stephens County

Magnolia	1-Crews	SWc NE NE 12-1-4 W
Magnolia	1-Hanson	SEc NW 12-1-4 W
Clark-Cowden	1-Davidson	NEc NW SW 13-1-4 W
Franklin	8-Apple et al.	NWc NE NE 24-1-4 W
Magnolia	1-Thomas	NEc NE SE SE 25-1-9 W
Clark-Cowden	2-Williams	NWc SE 31-1-8 W
Pearce-Brown	1-Cummings	NEc NW SE NW 27-1-8 W
Magnolia	9-Burke	NWc SE NW NE 34-1-8 W
Petroleum Prod	6-Bond	SEc NW SW 7-2-7 W
Owen-Wood	11-Massey	NEc SE NW 12-2-8 W
Pace et al	6-Wilson	NEc SW SE NE 12-2-8 W
Pace et al	7-Wilson	NE NE SE NE 12-2-8 W
Pace et al	8-Wilson	NWc SE NE 12-2-8 W
Pace et al	1-Bristowe	SEc NE NW 18-2-7 W

Tulsa County

Hall et al	1-Hooks	CEL NE NW 33-19-14
Thompson-Black	5-Jenkins	SWc NW 10-16-12
Thompson-Black	5-Bartholf	CNL SW SW 5-16-13 OWD

Wagoner County

Company	Well No. Farm	Location
Chapman	2-Hosmer	NEc SE SE 21-18-17 E
Dixon	2-Young	NEc NW 26-18-17 E

KANSAS

Cowley County

Krow-White	1-McIrwin	CNL SE 4-33-5 E
Hartman-Skaer	1-Shane	SWc NW 13-33-3 E
Elliott	1-Elliott	NWc 21-35-5 E
Lario	1-Kent	NE NW SW 34-32-3 E
Shawver	1-Schmidt	NEc SW 22-31-3 E

Edwards County

Amerada-Wilcox	1-Tonsil	C NW SW 32-25-19 W

Ellis County

Finney-Wenner	1-Freeman	SEc SW 24-15-20 W
Labette	1-Urban	NE NW NW 19-15-16 W
Brown et al	1-Gerster	SE SW NE 13-13-18 W
Mid-West	1-Austin	NEc 36-12-16 W
Davis et al	1-Dickerson	SWc NE 15-12-16 W

Harvey County

Austin et al	1-Neisman	SWc 21-24-2 E

McPherson County

Tatloyd	2-Chinberg	CEL W ½ NW 32-18-2 W
Tatloyd	1-Rosenberg	C SE NW 31-18-2 W
Newman et al	1-Deepenbrock	NWc NE 2-17-1 W

Osborne County

Johnson et al	1-Cosley	C NE NE 15-8-15 W

Ottawa County

Anderson et al	1-Ottawa Co. Bk.	NEc NW 28-10-2 W

Stevens County

Trees	1-	SW NE SW 3-35-38 W

Sumner County

Cameron et al	1-Sheppard	SEc NW 1-32-2 E

NORTH AND NORTH CENTRAL TEXAS

			Survey
Archer County			
Texas	2-Griffith	League-3, Blk-12	Denton Co. Sch. Ld.
Brown-Lickey	1-Dempsey	League-3, Blk-10	Denton Co. Sch. Ld.
Burns et al	1-Mankins	Sec-7, Blk-3	H&TC
Texas Unity	2-Turbeville	Blk-16	Jefferson Co. Sch. Ld.
Archer et al	1-Prideaux	Sec-1860	TE&L
Lamberth	1-Andrews	Sec-1825	TE&L
Brown County			
Young Bros et al	1-Hickman	Blk-783	Benson
Midland	7-Butler	Blk-783	Benson
Anna Belle	1-Butler	Blk-783	Benson
Midland	6-Butler	Blk-783	Benson
Burris et al	5-Newton	Blk-151	Curlong
Conway Bros	2-Newton	Blk-149	Miller
Anderson et al	1-Williams	Blk-792	Beck
Phillips	1-Williams	Blk-792	Beck
Smith	3-Moore	Blk-137	Bailey
Sinclair	4-Eubanks	Blk-141	Mitchell
Cranfill-Reynolds	9-Eubanks	Blk-141	Mitchell
Williamson et al	3-Eddington	Blk-141	Mitchell
Cranfill-Reynolds	8-Eubanks	Blk-141	Mitchell
Jay Hawk	9-Boyson	Blk-4	Williams
Stuart et al	1-Perry	Blk-355	Morrow
Daniels et al	1-Thompson	Blk-356	Berry
Henshaw	17-Bush	Blk-624	Kenney
Milham	2-Rosser	.....	Cross
Charter	7-Byler	Blk-43	T&NO
Cope et al	1-Reeves	Blk-632	Wright
Ditto	4-Richardson	.....	SA&MG
Van Eman	1-Johnson	Blk-53	Thomas
Evans	1-Martin	Sec-11	HT&B
Van Eman	1-Moore	Blk-277	Kerr County Sch. Land
Callahan County			
Richard	1-Gilliland	Sec-131	BBB&C
Tidal	1-Gilliland	Sec-131	BBB&C
Dees	1-Dyer	Sec-134	BBB&C
Peer et al	1-Gibson	Sec-24	BBB&C
Coleman County			
Charter	2-Crump	Sec-13, Blk-665	Scott
Sharp	1-Thorton	.....	Kilgore
Cunningham et al	1-Self	Blk-249	Loving
Tex Tex	1-Banister	Sec-9, Blk-665	Scott
Bradstreet	1-Griffin	Blk-744	Lappe
Humphrey Bros. et al.	1-Mathews	Blk-43	Ragnet
Cunningham et al	3-Jennings	Blk-94	Lipscomb
Cunningham et al	4-Jennings	Blk-94	Lipscomb
Culberson Bros	3-Gray	Blk-172	Isod
Comanche County			
Weister	1-Lindley	....	De Moss
Concho County			
Beall	1-Samson	Sec-95, Blk-71	H&TC
Erath County			
Weatherall et al	2-Hill	....	Kelly
Eastland County			
Amerada	1-Martin	Abst-358	Leahy
Rhodes et al	1-Henning	....	Van Norman
Rhodes et al	2-Henning	....	Van Norman
Mook-Texas	2-Williamson	....	Van Norman
Milham	2-Williamson	....	Van Norman
Milham	1-Williamson	....	Van Norman
Goodwin et al	3-Parker	....	Van Norman
Clark	1-Vance et al.	Sec-4	T&NO
Lowe et al	1-Riden	Sec-39	ET
Midland	1-Dingler	Sec-16	Sopp
Harbin	1-Turner	Sec-26, Blk-2	H&TC
Lewis-Moore	3-Harbin	Sec-27, Blk-2	H&TC

(Continued on page 46)

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended July 7, 1928

(Continued from Page 45)

Company	Well No. Farm	Location	
Jack County			
Lewis et al	1-Van Geem	Sec-12, Blk-4	H&TC
Mook-Texas	4-Casey	....	Van Norman
Mook-Texas	1-Williamson	....	Van Norman
Operators	3-Williamson	....	Van Norman
Park	1-Peek	Sec-3304	TE&L
Connell et al	7-Ellis et al.	Blk-3, Abst-877	Williams
McCulloch County			
Wakefield et al	1-Barton	Blk-1054	Blike
Palo Pinto County			
Hard Labor	1-Dalton	Sec-1780	TE&L
Craig et al	1-McAvoy	Abstract-410	Smith
Runnells County			
Pure	1-Geesecke Bros.	Blk-228	Smith
Shackleford County			
Cranfill-Reynolds	2-King	Sec-1, Blk-14	T&P
Tannehill	10-Moberly	Sec-59	ET
Callahan et al	4-Hail	Sec-150	ET
Stephens County			
Texas	3-Martin	Sec-5	LAL
Wentz	1-Elliott	Sec-55, Blk-7	T&P
Louisiana et al	1-First Nat'l Bk. of Cisco	Sec-445	SP
Bowden et al	1-Vaughn	Sec-54, Blk-6	T&P
Lawton et al	1-Parr	Sec-65, Blk-6	T&P
Chastain et al	1-Ellis	....	Bailey
McNallan et al	1-Rosenquest	Sec-2	LAL
Root et al	1-Hetson	Sec-6	LAL
Throckmorton County			
Woodson	1-Overcash	Sec-960	TE&L
Wichita County			
Hines et al	2-Waggoner	Sec-2, Blk-2	GC&SF
Bridwell	2-Waggoner	Blk-5	George
Hammon-Garrett	2-Mitchell	....	Lewis
Wilbarger Count			
Waggoner	2-Waggoner	Sec-33, Blk-4	H&TC
Waggoner	3-Waggoner	Sec-24, Blk-4	H&TC
Waggoner	4-Waggoner	Sec-24, Blk-4	H&TC
Waggoner	5-Waggoner	Sec-24, Blk-4	H&TC
Waggoner	6-Waggoner	Sec-24, Blk-4	H&TC
Texas	8-Waggoner	Sec-24, Blk-4	H&TC
Texas	9-Waggoner	Sec-24, Blk-4	H&TC
Texas	356-Waggoner	Sec-33, Blk-4	H&TC
Consolidated	1-Waggoner	Sec-36, Blk-4	H&TC
Grisham	1-Waggoner	Sec-50, Blk-4	H&TC
Phillips	5-Waggoner	Sec-45, Blk-4	H&TC
Consolidated	4-Waggoner	Sec-5, Blk-5	H&TC
Consolidated	5-Waggoner	Sec-5, Blk-5	H&TC
Waggoner Farm	2-Waggoner	Sec-5, Blk-5	H&TC
Waggoner Farm	3-Waggoner	Sec-5, Blk-5	H&TC
Texas	1-Waggoner	Sec-2, Blk-5	H&TC
Consolidated	1-Waggoner	Sec-16, Blk-5	H&TC
Young County			
Willett-Carter	1-Marshall	Sec-3413	TE&L
Nash et al	5-Hinson	....	Pier
Wilson et al	1-Eichelberger	Sec-1470	TE&L
Parker et al	1-McCrary	Sec-1995	TE&L
Rose-Hart et al	1-Brooks	Sec-1919	TE&L

WEST TEXAS AND PANHANDLE

Company	Well No. Farm	Location	
Crockett County			
Compton et al	1-Univ.	Sec-15, Blk-50	Univ. Land
Furhman	1-Padgett	C NE Sec-17	White
Gray County			
Phillips	2-Johns	SW SE SW Sec-87, Blk-3	I&GN
Magnolia	1-Saunders	NWc Sec-4, Blk-1	ACH&B
Landreath Prod.	1-Langham	NEc Sec-1, Blk-1	ACH&B
Travis	2-Morse	NEc SE Sec-3, Blk-26	H&GN
Danciger et al	2-Morse	NWc SW Sec-2, Blk-26	H&GN
Howard County			
F. H. E.	7-Roberts	NEc Sec-136, Blk-29	W&NW
F. H. E.	6-Roberts	SWc NE Sec-136, Blk-29	W&NW
F. H. E.	5-Roberts	NWc NE Sec-136, Blk-29	W&NW
F. H. E.	4-Roberts	NWc Sec-136, Blk-29	W&NW
F. H. E.	3-Roberts	NEc NW Sec-136, Blk-29	W&NW
Mid-West	1-Clay	NWc Sec-139, Blk-29	W&NW
Green	2-Clay	SWc SE SE Sec-127, Blk-29	W&NW
Marland	1-Roberts	SWc Sec-128, Blk-29	W&NW
Marland	1-Clay	NEc Sec-128, Blk-29	W&NW
F. H. E.	4-Roberts	SWc NW Sec-137, Blk-29	W&NW
F. H. E.	3-Roberts	SE NE NW Sec-137, Blk-29	W&NW
Marland-Texon	3-Settles	NE NW NW Sec-158 Blk-29	W&NW
Nolan County			
Hubert	1-Pepper	C N½ Sec-32 Blk-22	T&P
Pecos County			
California	17-Yates	Sec-34, Blk-194	TC
Roxana	8-Tippett	Sec-102	GC&SF
Mid-Kansas-Transc.	4-Yates	Sec-34½	Yates
Mid-Kansas-Transc.	25-Yates	Sec-34½	Yates
Gulf Prod.	10-Smith	Sec-28, Blk-194	GC&SF
Mid-Kansas	2-Yates	Sec-32, Blk-194	GC&SF
Wheeler County			
Wishkamper et al	1-Fee	C NE SW Sec-80, Blk-23	H&GN
Clark et al	3-Purcell	C NW SE Sec-52, Blk-17	H&GN
Winkler County			
Landreath Prod.	6-Grisham et al.	NE NW NW Sec-45, Blk-26	PSL
Gulf Prod.	27-Hendricks	CNL NW Sec-34, Blk-B-5	PSL
Independent	2-Howe	SE SW SE Sec-44 Blk-26	PSL
Landreath Prod.	6-Hendricks	SE SW SW Sec-40, Blk-26	PSL
Southern Crude	T-683-B1-Hendricks	NWc NE Sec-46, Blk-26	PSL
Southern Crude	T-673-A5-Hendricks	SE NE NE Sec-4, Blk-B-12	PSL
Southern Crude	T-88-L1-Hendricks	NE SE NE Sec-4, Blk-B-12	PSL
Southern Crude	T-88-M8-Hendricks	NE NW NE Sec-33, Blk-26	PSL
Republic Prod.	10-Hendricks	NE SE SE Sec-41, Blk-B-5	PSL
Republic Prod.	9-Hendricks	SE NE SE Sec-41, Blk-B-5	PSL
Southern Crude	T-88-M18-Hendricks	SW SE NW Sec-33, Blk-26	PSL
Southern Crude	T-90-2-Hutchins	SEc Sec-47, Blk-26	PSL
Southern Crude	T-90-3-Hutchins	NEc SE Sec-47, Blk-26	PSL
Cranfill-Reynolds	4-Hendricks	CWL SW NE Sec-33 Blk-26	PSL
Roxana	6-Hendricks	NW NE NW Sec-45, Blk-26	PSL
Atlantic	2-Hendricks	NW SW SW Sec-40, Blk-B-5	PSL
Landreath Prod.	4-Hendricks	CWL E½ SE Sec-40, Blk-26	PSL
Landreath Prod.	5-Hendricks	CEL SE Sec-40, Blk-26	PSL

Will Discuss Restricting Foreign Production

(By Telegraph)
NEW YORK, July 10

PLANS have about reached maturity for a conference in New York on July 30 to discuss the production situation from both foreign and domestic standpoints. The meeting on that date, it is understood, will be a preliminary to a later general meeting and will be participated in by some 20 executives of major companies.

For the past three weeks President E. B. Reeser, of the Barnsdall Corp., has been conferring with executives in New York. He is acting under the authority given him by a special meeting of the Mid-Continent Oil & Gas Association on April 21. When he was appointed chairman of an advisory committee of seven to advise with operators in the Mid-Continent on the limiting of uneconomic development and wildcatting.

Subsequent to this meeting a subcommittee was appointed to canvass the foreign situation. This consisted of Mr. Reeser as chairman, W. S. Fitzpatrick chairman of The Prairie Oil & Gas Co., Jacob France, president Mid-Continent Petroleum Corp., E. L. De Golyer, president Amerada Petroleum Corp., and Axtel J. Byles, president Tidewater Oil Corp.

While no formal proposals have been revealed it is understood that the conference will have as its main purpose the discussion of methods to coordinate conservation measures in producing districts of the United States and South American countries.

It is felt that the limitations which the producers have imposed upon themselves in Oklahoma, Texas and California should be pursued in other producing territories.

Feeling that the oil reserves already proved warrant belief that overproduction will continue for a long while unless there is voluntary restriction all along the line, the Mid-Continent committee is urging that an industry program be planned that will check inequities that exist when one territory, either foreign or domestic, continues unrestrictedly to develop and produce while some others are seeking to avoid uneconomic production.

Mr. Reeser has refused to comment on the progress of the movement except to say that he feels encouraged by the sentiment he has found. Other members of the committee also have reserved comment until something more definite can be announced.

CLEVELAND, July 10.—A short circuit in the pump house while a tank truck was being loaded with gasoline at the Painesville, O., plant of the Columbia Refining Co., Cleveland, caused a fire July 9 which destroyed the truck, the small pump house, a metal and frame warehouse and a tank car of gasoline which was being unloaded beside the warehouse. Several barrels of lubricating oils in the warehouse also were destroyed.

Average Potential Production Plan Gains Favor in Texas Prorating

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, July 5

UNIVERSALLY applicable prorating principles that can be used with local modifications in the various west Texas oil fields, continue to gain in favor.

The latest evidence of this fact was shown at Fort Worth, July 3, when operators in the Leck well area of northern Winkler county approved a committee report favoring average potential production as a yardstick for apportioning crude outlet at such time as exploitation takes place and market facilities are provided.

An alternative to the average potential production plan was mentioned in the report as the new system inaugurated in the Yates field of Pecos county, July 1. That plan allows 75 per cent for average potential production and 25 per cent for direct influence of proved acreage in reaching allotment figures under a combination yardstick.

South Winkler county, or Hendricks field, production would be separated from the northern Winkler, or Leck well, area under the plan recommended. A proposal to change the South Winkler prorating yardstick to embrace use of average potential instead of total potential production in some degree is being studied. Decision on that proposal will come later.

Average potential is figured by dividing the total potential of individual acreage units by the number of wells on such units. The theory is that this plan "weighs" the productive value of units and permits crude oil withdrawals more nearly approximating relationship with producing conditions that would obtain under normal development.

Acreage units in the various fields now prorated, or about to be prorated, vary in size as follows: Hendricks, or south Winkler field, 40 acres; Yates field, Pecos county, 100 acres; Leck, or north Winkler, area, 160-acre recommendation approved; Roberts-Settles deep lime area, southeastern Howard county, 40-acre recommendation approved.

The northern Winkler committee recommendations were made as "a necessary performance of responsibility imposed on the committee by operators," but the forming of definite rules and their submission to the Railroad Commission of Texas for an order will be delayed until such time as additional wells may be put down.

Texas Pacific Coal & Oil Co., which is drilling a test well offsetting the Leck well of Gibson & Johnson, Kessler & Logan, in sec. 3, block 74, announced it would shut down at 1000 feet until other operators could decide on development plans. The Prairie, Humble and Empire companies, which also have offset locations to the Leck well, have announced they preferred not to drill them at this time.

When any of these operators decides to drill he is to inform James R. Gahan, of the Tidal Oil Co., chairman of the north Winkler operating group. He then will call another conference looking toward field regulations and the reopening of the question with the railroad commission.

Iooking ahead to the time when the Leck well area will be opened for production the north Winkler committee reported:

"A most perplexing question which has obtruded itself into our deliberations has been that of determining the aggregate production for the north Winkler area. This question resolves itself into one of distribution as between north and south Winkler. (For the present all Winkler county comes under the railroad commission's prorating order issued for the Hendricks area.)

"The fact that north Winkler is not at all defined, that present production is inconsiderable and that actual outlet is lacking makes it impossible to suggest maximum production for the northern area.

"In the circumstances we suggest that the maximum must be flexible and to be determined from time to time as production increases. With this in mind it is suggested that the maximum for the northern area be governed by that percentage of its potential which the average unit in the south Winkler area is permitted to produce of its potential."

It was pointed out by the committee that this recommendation was made as a temporary expedient only. As soon as conditions may justify it a separate and definite maximum for the northern area would be determined.

Present maximum allowable production for the south Winkler producing territory is 175,000 barrels daily; for the Yates field, Pecos county, 65,000 barrels daily, and for the Roberts-Settles deep lime territory of southeastern Howard county, 15,000 barrels daily maximum has been proposed by an operators' committee.

The Railroad Commission of Texas, which has been asked to issue an order and enforce Roberts-Settles field regulations, will hold a hearing at Austin July 16 on the question. Meantime, about a dozen wells capable of producing in excess of 30,000 barrels daily remain shut in.

POTENTIAL production figures based on hourly gages of 234 wells in the Hendricks field and 206 wells in Yates field, plus the foregoing Roberts-Settles area approximation, give the three territories possible open flow yields of nearly 3,850,000 barrels daily, as follows:

Field	Wells	Bbls.
Hendricks	234	1,242,348
Yates	206	2,575,047
Roberts-Settles	12	30,000*

*Estimated.

The actual relationship that open flow production would bear to indicated potential used for prorating purposes, is something that probably never will be known. Distribution of field pressure over the entire area covered by individual fields under open flow conditions would certainly cut the indicated potential figures materially, perhaps in half from the start.

Even under such conditions of discounting yields, however, the open flow potential of the three west Texas fields mentioned would approximate roundly 1,975,000 barrels daily, or more than the whole of actual production in fields of the United States outside of Texas.

The necessity for discounting potential figures in attempting any measure of what actual open flow yields would be is brought clearly to the forefront in a study of water conditions in the south Winkler territory. A check of the field, late in June, showed 120 of the 217 wells then producing to be making water, 94 of them in quan-

PRODUCTION
REFINING
MARKETING

These three major divisions of the oil industry are the sources of articles presented each week to readers of NATIONAL PETROLEUM NEWS.

Besides its own staff of writers, leaders in their line of work and successful operating companies are constantly being sought by NATIONAL PETROLEUM NEWS to give its readers the benefit of their experiences and attainments in the oil industry.

Here are 62 typical articles published since the first of the year, from which every reader can obtain not only valuable information but also a number of new ideas to incorporate into his own business:

Production

Intermittent Use of Gas Lift [p. 69, May 30, 1928]
Origin, Development of Water Flooding [p. 59, May 30, 1928]
Small Economies in Field Operations [p. 24, May 23, 1928]
Results of Pressure Recovery [p. 25, May 23, 1928]
Watertight Pipe Line Coating [p. 80, May 23, 1928]
Repressuring Oil Sands [p. 85, May 16, 1928]
Simplifying Field Practice by Taper Joint Gages [p. 78, May 16, 1928]
Cushing Oil and Gas Field, Analysis [p. 90, May 9, 1928]
Slush Pits Standardized to Depth of Hole [p. 108, May 9, 1928]
Problems of Wet Gas Measurement [p. 27, May 2, 1928]
Cleaning Out Wells, Machine for [p. 67, Apr. 11, 1928]
New Slush Pump Is Fuel and Water Saver [p. 71, March 28, 1928]
Compressor Troubles and Helps [p. 116, March 14, 1928]
Effect of Repressuring During Flush Stage [p. 53, Feb. 29, 1928]
Mechanical Prospecting Methods on Gulf Coast [p. 65, Feb. 22, 1928]
Engineering Advances in 1927 [p. 57, Feb. 22, 1928]
Water-affected Leases Show High Oil Recovery [p. 28, Feb. 15, 1928]
Residue Gas Generates Current for Pumping Wells [p. 75, Feb. 1, 1928]

Refining

Shell Stills Fueled with Powdered Coke [p. 25, June 6, 1928]
How Auxiliaries Save $80,000 Yearly At Refinery [p. 33, June 6, 1928]
Gas Lock, Cause and Remedy [p. 19, May 30, 1928]
Careful Refining, Selling, Build Quality Trade [p. 56, May 23, 1928]
Volatility of Natural Gasoline [p. 88, May 23, 1928]
Gas Lift and Repressuring in Natural Gasoline [p. 97, May 23, 1928]
Fractionation in Natural Gasoline Plants [p. 102, May 23, 1928]
Cutting Costs in Steam Raising [p. 49, May 16; p. 49, May 9; p. 17, May 2]
Distillation Process Control by Laboratory [p. 69, May 16, 1928]
New Types of Distilling Equipment [p. 76, May 9, 1928]
Fuel Costs Cut with Old Shell Still [p. 81, May 2, 1928]
Reducing Costs by Careful Fractionation [p. 48, Apr. 25, 1928]
Fuel Costs Reduced ⅓ By Efficient Firing [p. 63, Apr. 25, 1928]
Motor Fuel Finished By Vapor Phase Blending [p. 39, March 14, 1928]
Technical Control of Refinery Processes [p. 144, March 14, 1928]
Color is Proper Filtering System Comparison [p. 137, March 14, 1928]
Shell Still, Big Volume Distilling Unit [p. 60, March 7; p. 63, Feb. 29]
New Device Burns Sludge Coke under Boilers [p. 101, March 7, 1928]
Pipe Still-Tower Fits Many Purposes [p. 97, Feb. 29, 1928]
Physical Control of Refining Operations [p. 49, Feb. 22, 1928]
Screened Radiant Heat in Oil Refining [p. 70, Feb. 22, 1928]
The Gasoline of Tomorrow [p. 87, Feb. 22; p. 49, Feb. 15, 1928]
Fighting Corrosion on Equipment [p. 47, Feb. 15, 1928]
Wax-Free Oil, Pours Below Zero, Holds Viscosity [p. 22, Feb. 8, 1928]
S.A.E. Viscosity Numbers in Specifying Motor Oils [p. 58, Feb. 8, 1928]

Marketing

Highways Determine Successful Stations, Bowser Survey (Rest of series) [p. 29, June 6, 1928]
Merchandising Furnace Oil Thru Gas Stations [p. 57, June 6, 1928]
Motor Oil Business, From Zero to Million Gallons a Month [p. 75, June 6, 1928]
Greasing Success Means Service, Good Merchandise [p. 53, May 30, 1928]
How Car Lubrication Service Adds to Profits [p. 19, May 23, 1928]
Travels One Year for Grease Station Design [p. 25, May 16, 1928]
Gets Greasing Jobs Through Free Car Delivery [p. 84, May 9, 1928]
Station Men Checked on Overhead Daily [p. 69, May 2, 1928]
Better Station Help by Soliciting Business [p. 48, Apr. 25, 1928]
How Much Quality Counts in Hats or Gasoline [p. 21, Apr. 4, 1928]
Personality at Pump Makes Profit [p. 84, Apr. 4, 1928]
How to Dress Station Windows [p. 33, March 14, 1928]
Basements Painted to Sell Burner Oils [p. 70, March 14, 1928]
More Sales Effort to Market Fuel Oils [p. 61, Feb. 22, 1928]
Chinaware Offered as Premium at Stations [p. 27, Feb. 15, 1928]
Direct Mail Boosts Lube Sales [p. 29, Feb. 15, 1928]
Displaying Side Line Goods at Stations [p. 57, Feb. 8, 1928]
Keeping Steady Customers for Greasing [p. 29, Feb. 1, 1928]
Chain Store Method in Selling Gasoline [p. 27, Jan. 25, 1928

Besides the above stories, each issue of NATIONAL PETROLEUM NEWS usually carries one good series on each of the three major branches of the industry, written by a well-known authority. Paul Wagner's series on West Texas has been published since the first of the year. Prof. Uren's articles on production methods, Frank Emig's marketers' accounting stories and Paul Truesdell's refining stories have all appeared recently.

NATIONAL PETROLEUM NEWS
Main Office: 1213 West Third St., Cleveland, Ohio

tities upwards of 10 per cent. Details follow:

Water Percentage	Number Of Wells
Less than 10%	26
10 to 20%	16
20 to 30%	9
30 to 60%	34
60% or more	35
Total	120

Water intrusions extend the entire length of the south Winkler territory, under conditions that would make fatal to the future productivity of the field the opening of the wells to maximum yields. The water with the oil probably will not cut down ultimate yields, however, because of its flushing influence on the several pay horizons found in drilling the deep lime of the region. In fact, ultimate yields probably will be increased because of the water.

In the Yates field, where somewhat similar but not identical structural conditions are found, the encroachment of water has been confined to edge wells. No water intrusions have been noted up-structure in the field, due to the close control exercised from the start by operators on the hydrostatic head backing up the oil deposits.

Opening of the Yates field to open flow production would, however, distribute field pressures and the pull of the wells would cause "coning" of the water table, with resultant rapid loss of potential production.

In the Roberts-Settles area of Howard county the deep lime wells lack similar high pressure influence back of the oil or inherent in the pay horizon. Consequently, most of them require swabbing to put them on production tests. Under actual exploitation, however, operators contemplate banning the use of the swab except for starting off the wells.

Williams Has New Small Burners for Homes

BLOOMINGTON, Ill., July 7.—Burners and refrigerators had their innings at the fourth international two-day convention of the Williams Oil-O-Matic Heating Corp., which closed June 30 at the company's headquarters here. The convention ranked among the largest ever held by a single industrial concern. It was attended by 2700 delegates.

Two new heating devices for domestic use were introduced at this convention. They were the Williams Dist-O-Matic oil burner, designed for heating smaller homes where the comfort dollar must stretch farther; and the Williams Dist-O-Stove, a complete heating unit, burning oil and replacing the small living room heating stoves.

Among the speakers were C. U. Williams, president of the company, and Walter W. Williams, vice-president and secretary. C. T. Fantozzi, assistant sales manager of Shaffer Oil & Refining Co., Tulsa, spoke on "Oceans of Oil."

The Editors' Viewpoint

National Petroleum News

Group 3 Base Quoting Continues

QUOTATIONS f.o.b. Group 3 prevail in the Chicago resale market although there is sentiment in the trade that sometime they will end. Those who expect the practice to cease, believe the western sales agencies some day will quote f.o.b. Chicago Belt, i.e., on track in Chicago switching district.

It is true that refineries on the Great Lakes, around St. Louis, and at intermediate points are competing vigorously for business in the territory generally considered the natural outlet for Group 3. And as a result refiners and marketers generally are beginning to quote delivered prices to jobbers in Ohio and parts of Michigan and Indiana.

This practice may become rather general and embrace more territory than it does now but the chances are not many for it soon to overthrow the custom of quoting f.o.b. Group 3. Even though the refineries in the immediate vicinity of Chicago come to dominate the Chicago market they will not try to make the nearby trade forget about Group 3 because they profit more than anybody else from the Group 3 habit.

The location of any piece of merchandise has a great deal to do with the price of it. To simplify quotations the location must be taken for granted. If the goods are not at the place understood the seller is supposed to make it right. Nearly every industry has, or has had some such convenient market place. Cotton still has its Liverpool and mules are in St. Louis unless otherwise designated.

Cement men quit quoting f.o.b. Allentown only after Allentown ceased to supply a good share of the merchandise so quoted. Steel manufacturers reluctantly abandoned Pittsburgh plus only after Pittsburgh was no longer the origin of most steel so bought and sold. It is therefore reasonable to expect Group 3 to continue until Oklahoma quits turning out most of the refined products so quoted. Since 1922 Oklahoma and Kansas refineries increased their annual output of gasoline from 28,000,000 to 55,000,000 gallons while the Indiana and Illinois refineries jumped from 21,000,000 to 44,000,000 gallons. The southwest had the larger increase but Illinois-Indiana the larger percentage of gain.

The practice of quoting delivered prices on gasoline is growing but it has a great deal more growing to do yet before Chicago refiners and carload marketers quit quoting f.o.b. Group 3 to jobbers in territory east of the Mississippi.—W. K. H.

Service Influences Motorists

A STUDY was recently made by a Pacific Coast oil company of the buying habits of a carefully selected and representative group of motorists. It developed that 60 per cent of these motorists confined their purchases to a single station. The condition disclosed offers to the reseller considerable food for thought about the proper method of increasing his business.

More than 40 per cent of the group of steady customers disclosed by the survey explained the principal reason for their continued patronage of one station was service. A study of detailed responses showed further that in about two-thirds of the cases the term service meant personal salesmanship, and that in only one-third of the cases did it mean actual physical equipment and conveniences.—P. W.

Yield Value Proration Plan

PRORATING of crude oil on a basis of average potential production of acreage units contemplates the nearest possible approach to withdrawals that would be made under normal conditions of development. It sets up a system of classified acreage, measured with regard to the productive value of the individual unit as compared with others of similar size.

Total potential, as originally used for a yardstick in the Yates field, Pecos county, Texas, stimulated drilling to gain higher percentages of prorated production. The proved acreage plan that was used later failed to distinguish between producing values of rich spots and lean areas. The average potential production method weighs acreage according to its relative yield value. Of all prorating plans it most nearly approximates its relative worth under natural conditions.

Proponents of the average potential production method point out that the system works similarly, regardless of whether field units are composed of 40, 100 or 160 acre tracts. Generally, 160-acre units would be preferable because the larger the tract the slower a field will be developed in times of actual, or potential, overproduction of crude. It is also preferable that only one well should be drilled on each acreage unit. The drilling of one well is necessary, however, to establish a producing value on each individual unit.

With one well drilled on a unit its production establishes the withdrawal value of the tract in its relation to the sum of all units, treated similarly. A second well on an individual unit, if larger than the first, gains a withdrawal value according to the weight of its influence; thus, actual potential, well No. 1, 4000 barrels; actual potential, well No. 2, 8000 barrels; total potential, 12,000 barrels; average potential, 6000 barrels, gained by dividing the sum of the potential by the number of wells drilled.

The new Yates field yardstick agreed on by Pecos county, Texas, operators is a compromise between the two schools of thought who stood for controlling influence of acreage and controlling influence of total potential production.

In the new Yates field agreement, average potential production counts 75 per cent in determining the producing allotment of operators. Proved acreage, without regard to potential production, figures 25 per cent in the apportionment.

Admittedly, the compromise is a forward step as compared with yardsticks used in the past. The question next for consideration is ultimate adoption of average potential without regard to separate consideration of proved acreage, inasmuch as the acreage factor is truly taken into account in the weighting influence of the average potential plan.—P. W.

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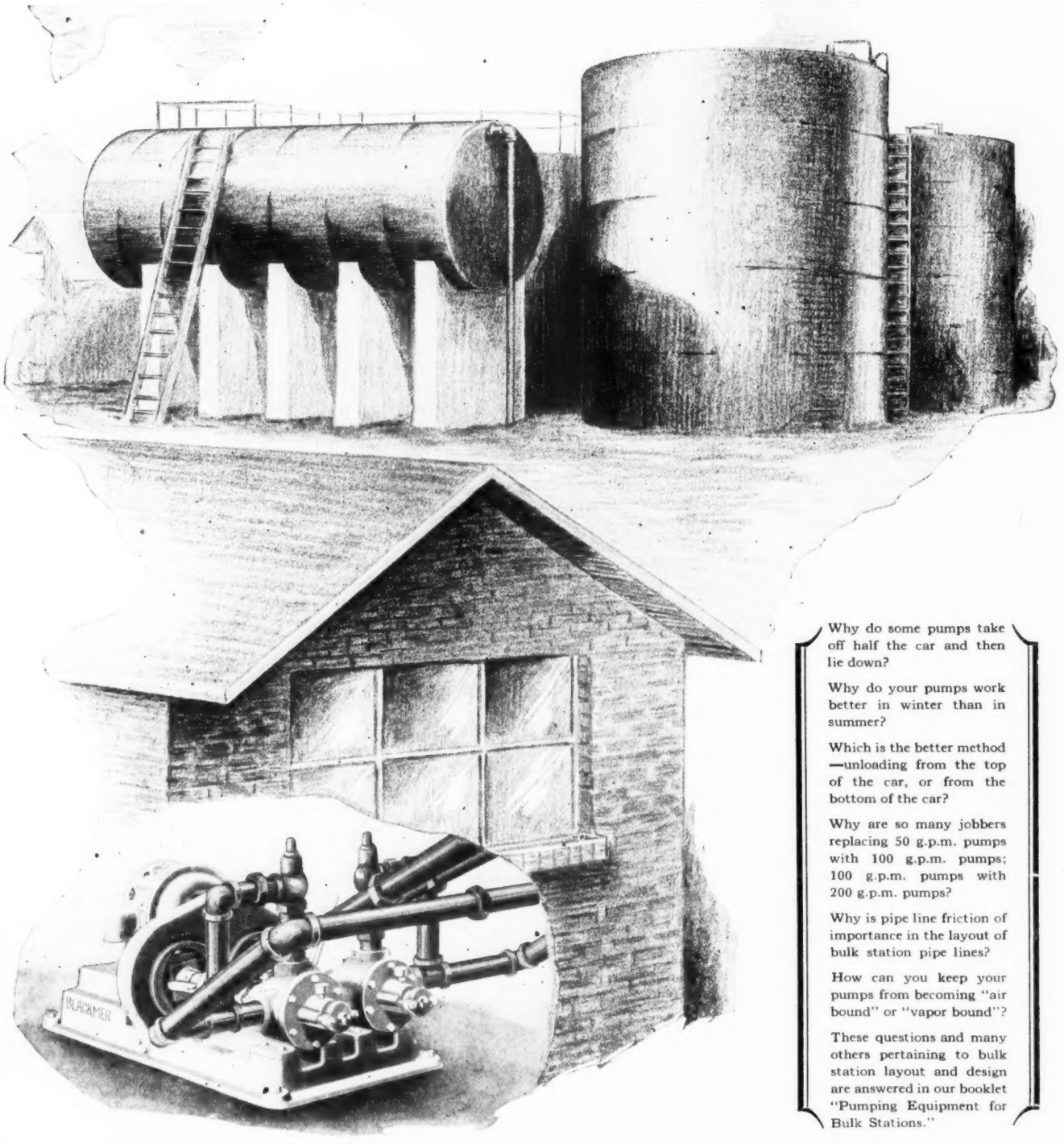

Why do some pumps take off half the car and then lie down?

Why do your pumps work better in winter than in summer?

Which is the better method—unloading from the top of the car, or from the bottom of the car?

Why are so many jobbers replacing 50 g.p.m. pumps with 100 g.p.m. pumps; 100 g.p.m. pumps with 200 g.p.m. pumps?

Why is pipe line friction of importance in the layout of bulk station pipe lines?

How can you keep your pumps from becoming "air bound" or "vapor bound"?

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Suction, capacity, and ability to work against specified pressures remain practically constant. The pump does not gradually lose its ability to pump.

Require Less Power

Take the question of power. Blackmer Pumps handle more volume of liquid with less power than any piston pump made. This is so because the action of a Blackmer Pump is a continuous rotary action. When once started there is no stop or hesitation in the flow of liquid. It is a well established mechanical law that it requires more power to start and stop intermittently the movement of any object, than it does to keep it going after it is once started.

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When the ordinary rotary pump loses its suction and cannot be primed, it is usually ready for the junk heap. No provision is made for renewing the parts which wear out. When a Blackmer Pump begins to show signs of wear, it is only necessary to replace a few inexpensive parts, and the pump is ready for another long period of service. Anyone who can handle a monkey wrench can make such repairs. It is only necessary to remove the head of the pump, insert new buckets, replace the head and the pump becomes practically the same as new. Thus, using a Blackmer, you are assured of constant service, with no long shut-downs, nor expensive repair bills. It is significant that in far off Siberia and other out of the way corners of the world, far from any source of skilled labor, the large oil companies use Blackmer Pumps almost exclusively.

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Our files are full of letters telling of Blackmer Pumps which have been in operation for 8, 10, 12, and even 15 years without repairs aside from the insertion of new buckets.

Most of the large oil companies use Blackmer Pumps at all of their unloading stations. They know by test, by comparison and by years of experience, that Blackmer Pumps deliver years of dependable service at lower cost than any other pump built.

When you add up every item of expense from the interest on the original investment to the cost of power for operation, you will find that Blackmer Pumps actually do deliver "More Gallons Per Dollar."

There are a few simple hydraulic principles which must be followed in laying out a bulk station if satisfactory operation of pumps is to be expected. We have prepared a booklet which describes in detail the proper layout and design of successful bulk stations. It explains why sometimes a 50 g.p.m. pump is more satisfactory than a 100 g.p.m. pump. It tells why the size of the pumps and the length of suction lines are such vital factors in bulk station layouts. Gives details on pipe friction, friction of elbows, pressures, etc. In short, it tells a man the things he should know about pumps and piping in order to plan an unloading station properly.

We shall be pleased to mail you this booklet upon request. It is well worth your time to read it and follow the simple principles which it contains.

Get a copy of the new Blackmer Catalog too. It contains much valuable information for Oil Jobbers.

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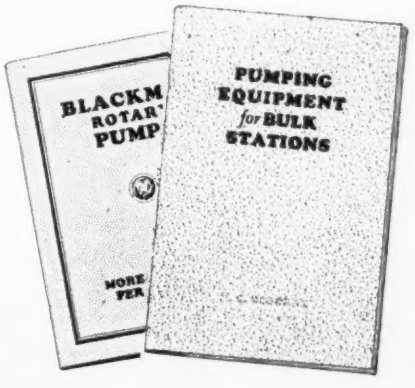

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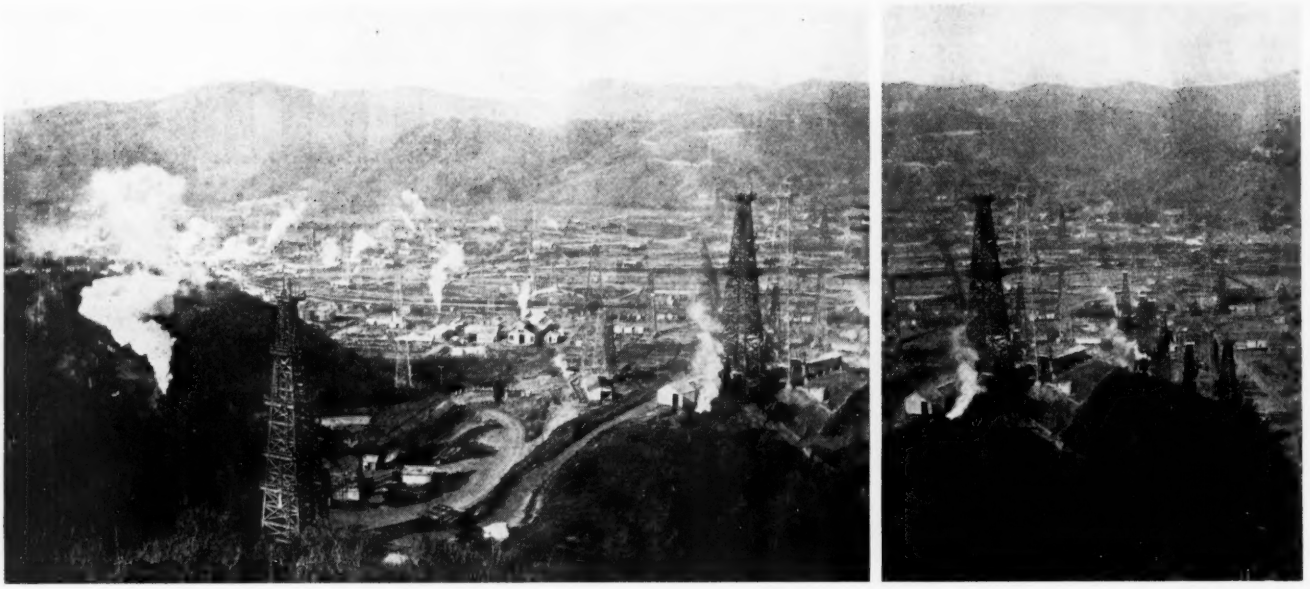


A panoramic view of the Ventura Ave. field in California. At the left is Fig. 3, looking northwest over western portion of field. In the center

Development Practice in World's Deepest Producing Oil Field

By Lester C. Uren

Professor of Petroleum Engineering, University of California

THE Ventura Avenue field of California is, in several respects, one of the most interesting oil fields in the United States. In it are the deepest producing wells in the world. In order to attain the depths from which production is secured here, exceedingly heavy equipment has been employed and unusual methods applied in controlling the high gas pressures encountered.

A productive oil-bearing formation of phenomenal thickness promises to make this one of the most prolific oil fields in the world, from the production per acre standpoint. The field is also notable as the scene of an effort at cooperative control of production methods among the property owners that is epochal in the history of the oil-producing industry.

The Ventura Avenue field is situated about two miles north of the city of Ventura, the county seat of Ventura county, in the hills of the Coast Range bordering the Pacific Ocean. (See Fig. 1). A picturesque region, with all of the advantages of favorable climatic conditions characterizing the southern California coastal area, the field is ideally situated from the standpoint of living and working conditions. Less than a hundred miles from Los Angeles, an important oil-field supply center, with excellent highway and rail communication facilities, general accessibility and transportation conditions to the field are all that could be desired.

The earliest oil-field development in California was in Ventura county, and interest has been attached to its many petroliferous outcrops and other indications of favorable structure, and the presence of geologic horizons known to be commercially productive of oil in other localities in the California Coast Range and Los Angeles Basin.

A shallow gas sand was exploited by a local gas company in the Ventura field as early as 1903, but it was not until 1915 that the first wells were drilled into the uppermost or "light-oil" zone, which lies at a depth of less than 3000 feet. The upper zone was scarcely commercial, though some of the oil was as high as 50 degrees in Baume gravity, and exceedingly volatile.

The early development was sufficient to roughly delineate the structure, which, while small, was found to have an unusual closure. The discovery of the deeper, more prolific sands now being ex-

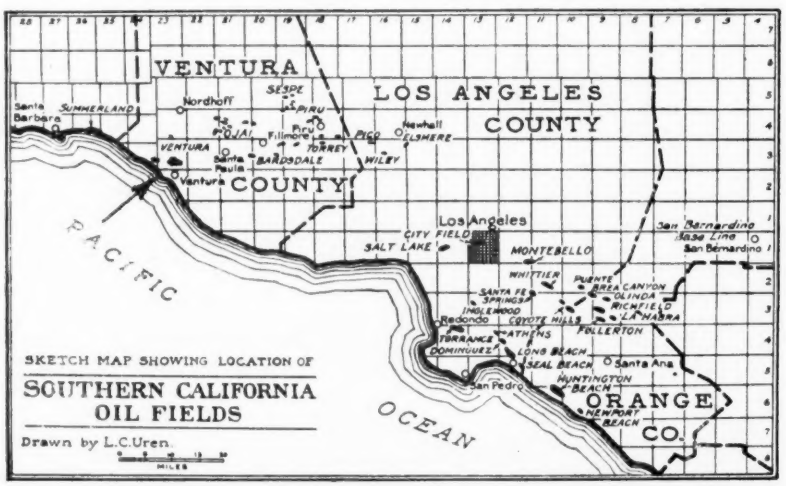
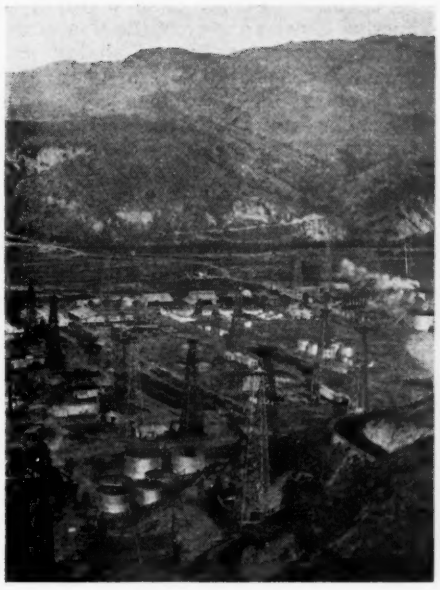
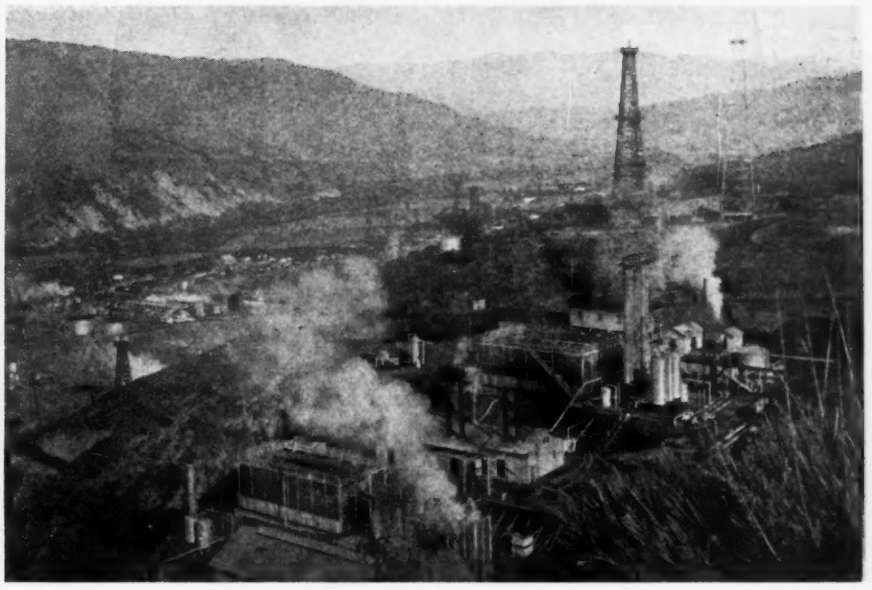


Fig. 1. Sketch map of southern California oil fields, showing location of Ventura Ave. Field





is Fig. 4 looking north over western portion. Fig. 5 at the right is looking northeast over western portion of the field

ploited, was due not so much to the earlier exploitation however, as to the development of deep-well rotary drilling methods and means for controlling the unusually high gas pressures encountered. The top of the highly productive lower, or "Lloyd" zone, lies at a minimum depth of about 4300 feet below the surface, and it was probably this, together with the difficult character of the overlying formations, which prevented its earlier discovery.

In January, 1925, the first well was drilled into the Lloyd zone, and since that time, development has proceeded as rapidly as the difficult drilling conditions, conservative management and generally unfavorable oil markets have permitted. In April, 1928, there were about 116 producing wells in the field, and the monthly production was about 51,000 barrels.

The limits of the productive area have not yet been fully determined, and none of the wells yet completed have penetrated the full depth of the productive lower zone, though two have been completed at depths in excess of 7200 feet and another is still drilling in oil sand at a depth in excess of 7800 feet.

Oil accumulation in the Ventura field has resulted through the concentrating influence of a well-defined anticlinal structure which plunges from a structural crest, forming a closed structure that apparently persists in the strata to great depths. The flanks of the structure dip rather steeply, excellent surface exposure indicating dips of 35 degrees or more on both flanks. In the oil-bearing portion of the structure, the closure is as great as 1000 feet or more. A few miles to the west, in prolongation of the Ventura anticline, is another "structure," on which the Rincon field is now being developed.

The present proven area within the Ventura Avenue field is about 3 miles long and ¾-mile wide, comprising about 1200 acres. The productive horizons occur within what is locally called the "Pico Formation" or Lower Fernando, which is probably Lower Pliocene (Upper Tertiary) in age. Oil occurs in many different sands and sandy shale strata in several "zones" that are not as yet clearly defined. The upper "light oil" zone is encountered at a depth of about 2100 feet at the crest of the structure. The Gosnell Shale, also oil-bearing and the best marker horizon, occurs at about 2900 feet.

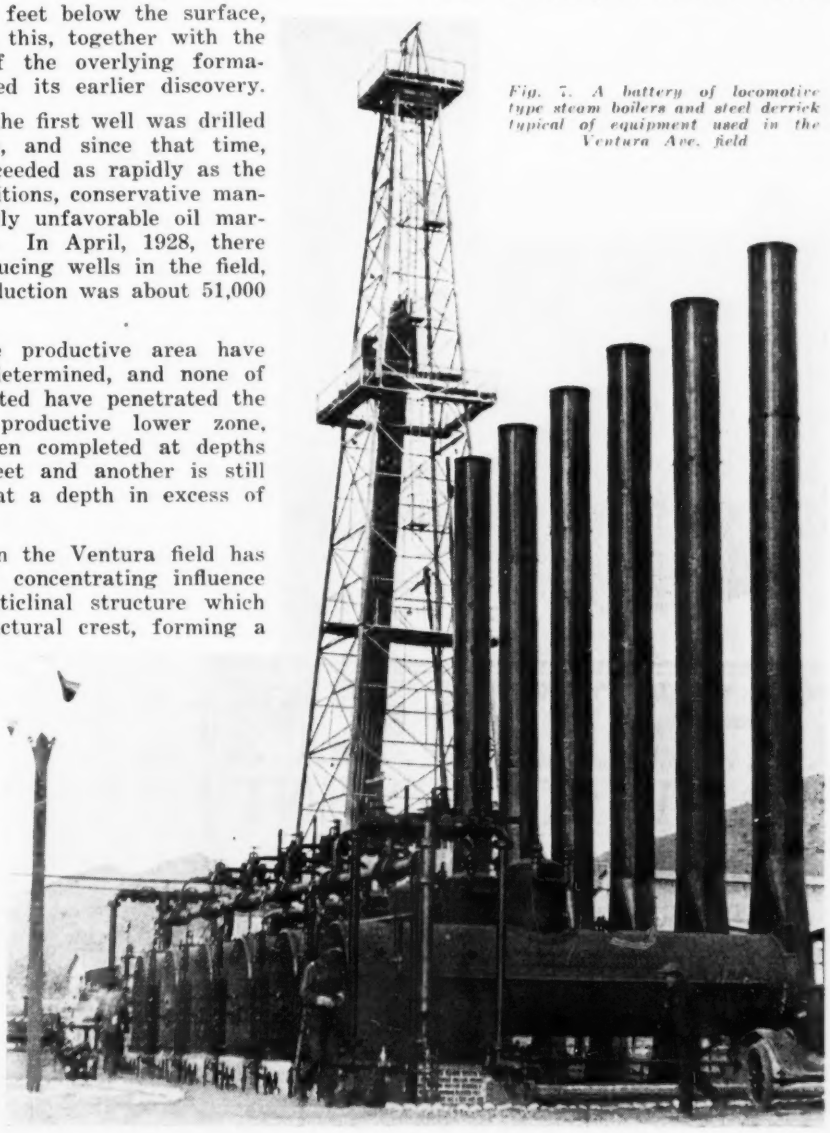


Fig. 7. A battery of locomotive type steam boilers and steel derrick typical of equipment used in the Ventura Ave. field

Below this are two rather poorly defined "heavy-oil zones," extending from about 3000 feet to 4200 feet; and at about 4400 feet, the prolific "Lloyd Zone" is found. The latter has been penetrated to a depth of more than 7800 feet, and though it may extend to considerably greater depths, some geologists have estimated that the underlying "Monterey Formation" (Miocene), which is thought to be the source rock, will be found

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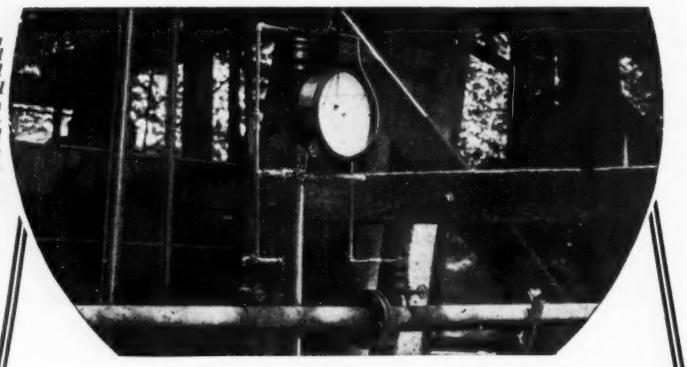

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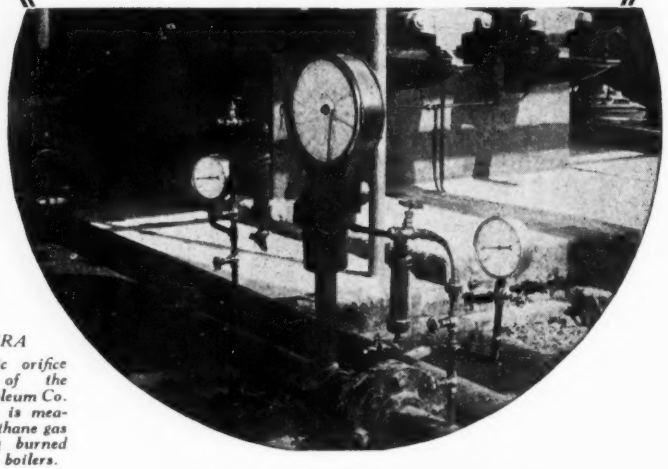

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at about 8000 feet. The highly productive lower zone consists of a series of alternating sands and shales, sufficiently cemented to stand up well without a liner. Some wells have logged as much as 3600 feet of productive oil-bearing formation.

Development Methods

The entire Ventura Avenue field is controlled by only five companies, and two of these—the Associated Oil Co. and the Shell Co. of California—own by far the greater part of it. A conservative program of development has been followed and the companies concerned have shown an unusual willingness to cooperate in determining uniform methods of development and exploitation.

Wells throughout the field are, for the most part, spaced about 400 feet apart and arranged in triangular pattern. This may seem a rather wide spacing in view of the great thickness of the oil sands, but it must be remembered that the wells are unusually deep and drilling costs are high; probably about $150,000 per well for production from the deeper horizons. Then too, there is an abundance of gas under very high pressure in the productive formations, which again would justify a wide spacing.

While no definite agreement has been made regarding penetration of the productive formation by the wells, the larger operators appear to be following a program in which successive wells are drilled to greater and greater depths, by intervals of several hundred feet. When the thickness of the productive formation is eventually determined, it is probable that all of the existing wells that are in suitable mechanical condition—or many of them at least—will be deepened.

The greater part of the surface of the productive area of the field is exceedingly rugged in character, and one of the difficult and expensive problems in field development has been experienced in building roads and excavating for well sites. In one excavation for a rig, a 90-foot cut had to be made, and 35,000 yards of material had to be moved. The photographs reproduced herewith will serve to illustrate the rugged character of the topography, and in some of them, the unusual size of the excavations for rigs and roads can be observed. Some difficulty has been experienced with slides of surface material on the steep hillsides. One such slide, embracing about 22 acres in the heart of the field, is moving as a block to such an extent that its exploitation presents a serious problem.

Drilling in this field is exclusively by the hydraulic rotary method, and exceedingly heavy equipment has necessarily been used to attain the great depths from which production is secured. Steel "combination" rigs with 24 x 122-foot steel derricks have been used for the most part, though timber

Fig. 8. Clay pit producing clay for preparation of mud-fluid used in rotary drilling. Property of Shell Co. of California, Ventura Ave. field

rigs have also been employed, as will be observed in the accompanying photographs.

Due to the abundance of gas in the field, steam power is exclusively used for drilling purposes. A novelty is presented in the use of two engines at many of the wells, a 12-inch x 12-inch twin-cylinder engine for operating the three-speed draw-works and rotary table, and a separate, single-cylinder, 12-inch x 12-inch engine for handling casing and bailer. The rotary hose, swivel, traveling blocks, elevators and other incidental derrick equipment are necessarily of the heaviest character. Three 70 or 80-horsepower boilers furnish power for each rig. The drill-pipe employed ranges from 8 inches to 3 inches in size, depending upon the size of hole being drilled.

Fish-tail and disc bits are used, generally faced with hard metal to give increased footage. Due to the great depths necessary, the wells must have a large initial diameter: generally 25-inch or 27-inch fish-tail bits are used for spudding in. A reamer is frequently run above the bit, and the wells are customarily reamed wherever necessary to ensure proper clearance for casings. In drilling in the deeper horizons, anti-friction tool-joints are commonly used to avoid wear on the casings and to reduce power consumption and strain on the drill pipe.

The casing program varies somewhat with the depth to which it is planned to carry the well, but a common program now followed, involves the initial use of 18⅝-inch or 20-inch stove-pipe to case off running surface sands and gravels, to a depth of from 650 to 750 feet, where it is cemented. Through this, a string of 11¾ inches or 13⅜-inch seamless casing is carried to a depth ranging from 3000 to 4400 feet. This is the primary water string and must therefore also be cemented. A secondary water shut-off is made with a string of 10¾ inches, 9 inches or 8⅝ inches A. P. I. seamless casing, carried to a depth of from 3700 to 6200 feet.

Wells are then completed with a 6⅝-inch or 5¾-inch oil string. Perforated pipe, without screens, is used in the lower part of the oil string. In some cases as much as 2500 feet of perforated pipe have been successfully landed. Due to the well cemented character of the oil sand, it has been possible to bring some of the wells in with open hole below the secondary water string: an unusual condition in the California fields.[1]

Control of the great volumes of high-pressure gas—sometimes as high as 1600 pounds per square inch—in the formations penetrated by the wells in the Ventura Avenue field, presents a difficult problem. It is frequently necessary to resort to heavy minerals in order to secure a drilling fluid heavy enough to keep the gas under control. "Gas-cut" mud must be properly discarded otherwise a "blow-out" is likely to occur.

The great depths attained and long strings of drill pipe and casing in use, also require continuous circulation and freedom from excessive quantities of sand in suspension in the well fluid, if "freezing" is to be prevented. Comparative absence of clay in the formations drilled makes it necessary to bring in clay to the drilling wells from outside sources for preparing the circulating mud fluid. The great quantities of fluid that must be used, have led to the unusual practice of preparing the fluid in central mud-mixing plants and distributing it to the drilling wells by pipe lines.

The largest of these mud-mixing plants is operated by the Shell Co. of California. (See photos reproduced in Figures 8 and 9.) Clay for this plant is quarried in a large open cut by steam shovels and moved in motor trucks to the near-by crushing and hydrating plant. The material is first passed through crushing rolls, then mixed with water and screened. It is then stored in large steel tanks where it is circulated for a period of a few days or a week, or until fully hydrated. Viscosity and density tests are frequently made to maintain uniformity in the product.

The mud pumped to the wells weighs about 90 pounds per cubic foot as it leaves the mixing plant, but is diluted to the desired density (76 to 82 pounds per cubic foot) in the field. Where mud heavier than can be prepared with ordinary clay is required, finely ground hematite (iron oxide) is added. This material is brought from Utah. At times the mud fluid used in the drilling of one

[1] Note: Many of the details of drilling and casing practice have been taken from a paper by H. H. Dievendorff and F. W. Hertel, presented at the New York meeting of the A.I.M.&M.E., February, 1928, to which the reader is referred for a more detailed treatment of the mechanics of deep drilling practice in the Ventura Avenue field.

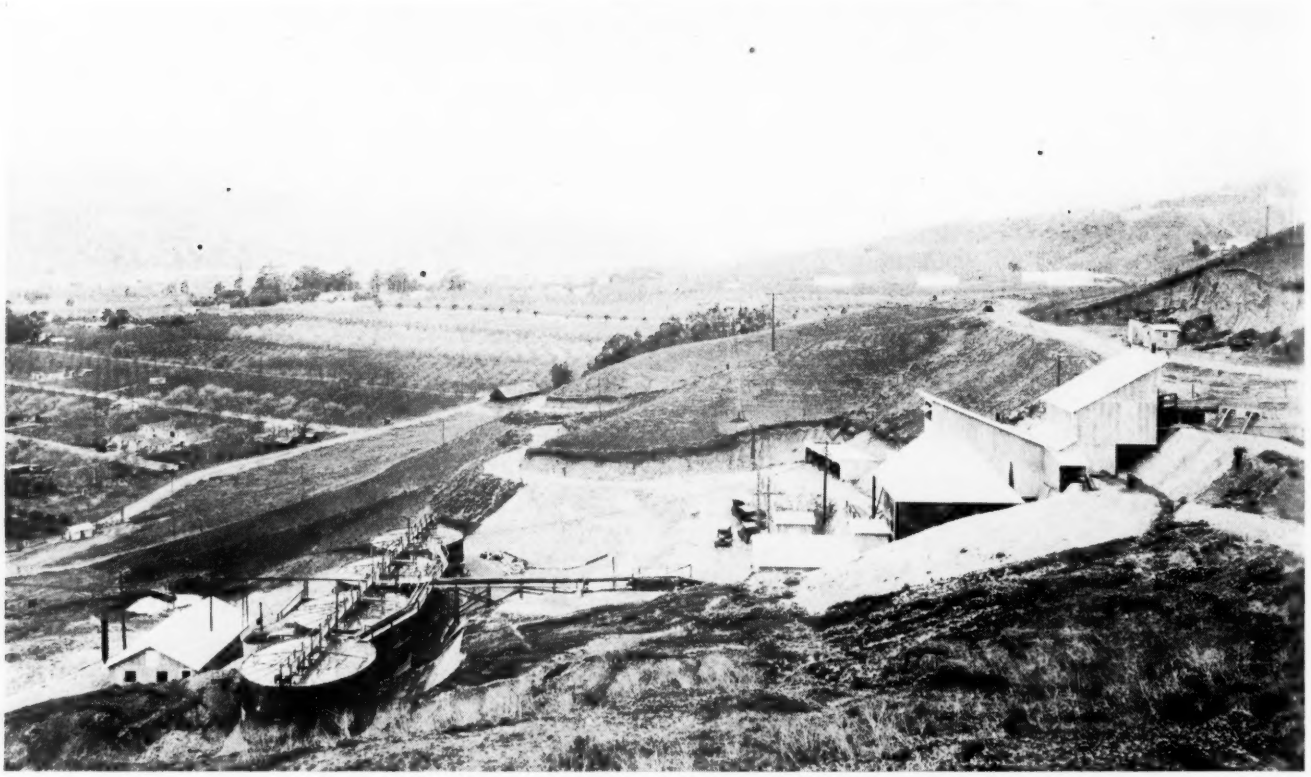

Fig. 9. Plant used by the Shell Co. of California for preparation of mud-fluid used in rotary drilling, Ventura Ave. field

of these deep, high-pressure wells, will cost as much as $3000.

Cementing operations are exceedingly important, as successful water shut-offs are required by state law which is rigidly enforced by the state oil and gas supervisor's department. Furthermore, security of a large investment is involved in that satisfactory oil production cannot be secured unless a satisfactory water shut-off is obtained. The large diameter surface strings are cemented all the way from the shoe to the surface. Due to cavities about the well and a large clearance, as much as 2000 sacks of cement are often used in cementing this string alone. The primary water shut-off, using 13⅜-inch casing, requires an additional 500 to 800 sacks of cement, the last 200 sacks of which is treated with a chemical accelerator, such as calcium chloride. From 350 to 600 sacks of cement are also used in cementing the secondary water string of 8⅝-inch or 9-inch casing. In addition, the oil string is frequently cemented under pressure through its upper perforations.

The wells are equipped with 2½-inch or 3-inch flow-tubing to a point about 100 feet above the top of the perforations in the oil string. They are completed in the usual manner by circulating out the mud with clear water until the well flows, swabbing if necessary. Some wells have been completed without oil strings and have flowed continuously for more than two years without "sanding-up."

Production and Production Methods

Initial productions of wells in the Ventura Avenue field have ranged as high as 5700 barrels per day, and individual wells have produced as much as 45 million cubic feet of gas per day. When a proper water shut-off is secured with the upper casing strings, the oil is produced with very little water, except along the edge of the upper heavy oil zone, where edge-water is being encountered.

The producing wells, now numbering about 120, have an average production of about 420 barrels of oil and two million cubic feet of gas. The gas-oil ratio is seen to be about 4000 cubic feet per barrel: a comparatively high figure. The wells at and near the structural crest have considerably higher gas-oil ratios than those further down the flanks. According to Mr. L. C. Decius,[3] early in 1927, the wells within a certain area about the crest of the structure were producing in excess of 5000 cubic feet of gas per barrel of oil, while wells in a zone about the edges of the field produced less than 3000 cubic feet per barrel.

Estimates of ultimate or total recovery likely to be obtained from the better portions of this field range as high as 375,000 barrels per acre, and the field as a whole will probably average at least 200,000 barrels per acre. Conservative estimates place the total ultimate recovery of the field as high as 250 million barrels of oil and 600 billion cubic feet of gas. It is reported that one of the early Lloyd zone wells, which had an initial production of about 4640 barrels of oil, was still producing 550 barrels per day after flowing steadily for 22 months, during which time it produced a total of more than a million barrels.

Most of the wells are producing by natural flow, but a few are pumped. Fluid levels are still high, so that pumping is feasible, but mechanical pumping from the lower horizons of the Lloyd zone will present a difficult problem in future years when fluid levels have subsided so that the oil must be lifted from depths approximating that of the reservoir rock. Unusually high gas pressures will be necessary to operate gas lifts from such depths as are attained by the Lloyd zone wells, but this method may be the only practical means of lifting oil from the lower sands unless improved means of mechanical pumping are developed in the near future.

The high-pressure flowing wells are in most cases, producing through flow-nipples as a means of holding back-pressure on the sands and conserving gas. The field has been noted especially during its early period of development, for the high gas-oil ratio with which the oil is produced, but within recent months, heroic efforts have been made to reduce the gas production, even to the point of seriously curtailing the rate of oil production and completely shutting in some of the crest wells that were particularly offenders from the gas-wastage standpoint.

Practically all the oil produced at the present time ranges from 29 to 31 degrees in A. P. I. gravity, a grade which has, during recent months, commanded a price of $0.92

[3] Decius, L. C., "Natural Gas Development in California," Oil & Gas Journal, June 16, 1927, page G-75.

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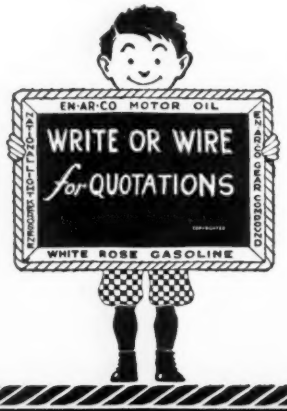

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Fig. 10. Extreme eastern end of Ventura field, one of Standard Gasoline Co's. plants in the foreground

per barrel. Egloff and Morrell[3] have reported the results of physical tests and distillation tests on this oil as follows:

A.P.I. Gravity	29.5°
Furol Viscosity at 77° F.	14-seconds
Cold test	22°F.
Sulfur	1.00%
Gasoline content	31.0%
Kerosene content	7.2%
Gas Oil content	19.8%
Lubricating Oil content	12.3%
Paraffin Wax content	2.7%
Pitch bottoms	25.0%
Water	2.0%

Transportation of oil from the field is by means of pipe lines to Ventura on the coast of the Pacific, two miles distant, where it is taken on board ocean-going tankers engaged in coastal and inter-coastal movement of oil to the various refining centers. Both the Shell Co. of California and the Tide Water Associated Oil Co., the two largest producers in the field, have large refineries on the shores of San Francisco Bay, about 375 miles north of Ventura.

Natural Gas Utilization

The Ventura Avenue field produces such great volumes of natural gas that for a time its utilization presented a difficult problem to the operators. Two hundred and forty million cubic feet of gas per day is a volume of gas that is not easily utilized in useful ways until special facilities have been provided and a market for it developed. Undoubtedly much gas was wasted during the early development of this field, but it was a character of waste that under the circumstances, could not be economically avoided. Recently, in accordance with a plan concurred in by operators and state authorities, some of the chief offenders among the producing wells have been entirely shut in, while the flow of both oil and gas from others has been partially curtailed so that the production of gas has been reduced about 60 million cubic feet daily, while the flow of oil has been curtailed only 20 per cent in comparison with the potential maximum production of the existing wells.

The gas produced carries about one gallon of condensable vapors per thousand cubic feet and is a profitable source of revenue in the production of natural gasoline. Practically all of the gas now produced is passed through one of several gasoline extraction plants. The Shell Co.'s gasoline plant, situated in this field, is one of the largest if not the largest plant of its kind in the world from the standpoint of daily capacity, the daily through-put being about 100 million cubic feet of gas per day. The oil absorption process is exclusively used.

The residual gas, after extraction of the gasoline, is used for the development of power throughout the field —mostly steam power for drilling purposes—and the balance is transmitted by pipeline to Los Angeles and neighboring cities about 80 miles distant, where it is distributed by utility companies serving an extensive industrial and domestic market. Three pipelines, one 15-inch and two 12-inch, transport gas from the field with an aggregate daily capacity of one hundred million cubic feet.

In conclusion, it may be said that the Ventura Avenue field will go down in the annals of the petroleum industry as one of the country's major oil fields—one of the world's most prolific oil-producing areas from the production-per-acre standpoint. It will likewise be known as the proving ground where modern deep-drilling

[3] Egloff, G., and Morrell, J. C., "Ventura Crude Yields 31% Gasoline by Topping," NATIONAL PETROLEUM NEWS, Aug. 10, 1927, pp. 76-79.

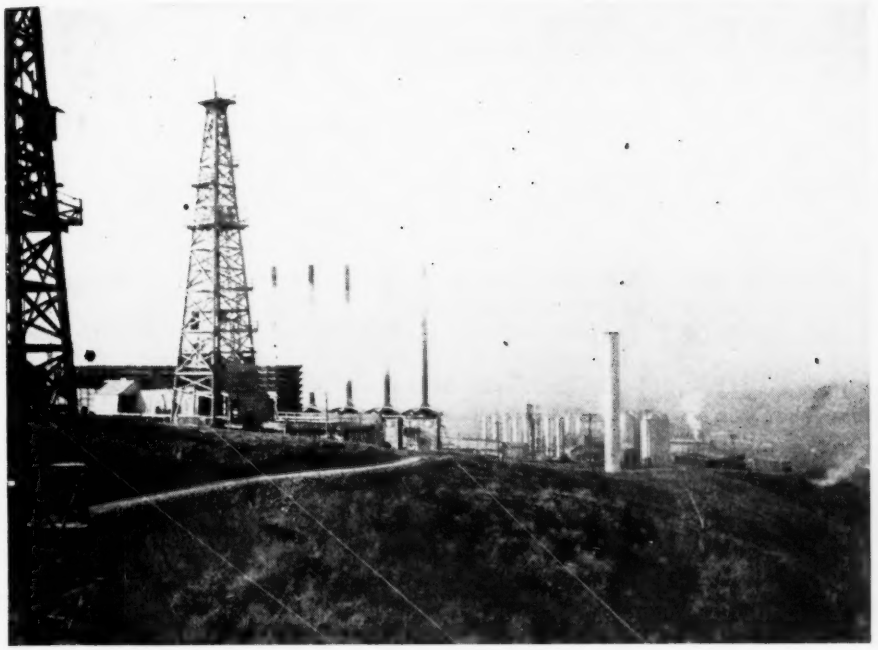

Fig. 11. A portion of the Shell Co.'s natural gasoline extraction plant, Ventura Ave. field

practice and methods of high-pressure gas control received their early development. It seems probable also, that this field may be the scene of new triumphs of petroleum production engineering science in the pneumatic or mechanical lifting of oil from great depths, but this development is possibly not one that we may expect in the immediate future.

Would Simplify Diesel Oil Specifications

NEW YORK, July 7.—Just three specifications are sufficient for Diesel engine oil. It should have a minimum gravity of 24 degrees A. P. I., a maximum sulfur content of 1.5 per cent and a minimum flash of 150 degrees, closed cup—these suggestions were made by G. H. Michler, Standard Oil Co. of New Jersey, at the meeting of the American Society of Mechanical Engineers, oil and gas power division, at State College, Pa., June 14 to 16.

Mr. Michler told of the impossibility of carrying several grades of oil at points not near refining centers, to satisfy the notions of users who insist on needlessly severe specifications.

"The main obstacle in the future to a reasonable price is the lack of a standard Diesel oil specification with sufficient flexibility to permit refiners to utilize crudes from various sources and to carry one grade of Diesel oil in tankage at different points," he said.

"Unless this is done, the future progress of the Diesel engine is going to be very materially handicapped. This handicap will be twofold: in the first place, the cost of manufacturing, handling, and storing a variety of different grades of Diesel oil may cause the price to mount to a point where it would destroy the economy which rightly belongs to the Diesel engine due to its low fuel consumption.

"In the second place, unless Diesel engines are constructed which can operate efficiently on a standard grade of Diesel oil of broad specifications, ship operators will be unduly restricted to limited points of fuel supply."

Fire Damages Jobber's Plant

MINOT, N. D., July 6.—The main warehouse and office of the International Oil Co. here were destroyed by fire July 3, resulting in the death of two employes, injuries to two others, and a money loss of between $20,000 and $30,000. Several lube oil tanks and contents were badly damaged. The plants were covered by insurance. The employes killed are T. E. Hulberg, warehouse foreman, and Miss Margaret Elder, stenographer. Two employes were injured and are now in the hospital.

H. M. Wilson, president of the North Dakota Petroleum Association, is president of the International company.

Tiona Head Forms Export Company

PHILADELPHIA, July 5.—C. A. Boler, president of the Tiona Petroleum Co., here, resigned June 30 to organize the Boler Petroleum Co. at 1128 Widener Bldg. Mr. Boler will continue to handle the business formerly conducted by the Tiona in its export department. The same source of supply, shipping facilities, and so on, will be available for Mr. Boler.

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How Important Petroleum Tests Are Applied and What They Show

CORRECT determination of the qualities and characteristics of petroleum products is one of the most important matters in refining and marketing these products.

Incorrect determination is also a cause of frequent dispute between buyer and seller, sometimes leading to lawsuits and frequently leading to hard feelings that result in loss of business and general dissatisfaction.

Such disputes over quality are often the result of misunderstanding either of the method of making the test or the testing method to be used.

In order to clarify in the industry's mind the various important tests used in determining the quality of products, the subcommittee on application of tests of Committee D-2 of the American Society of Testing Materials has prepared "The Significance of Tests." This report was approved by Committee D-2 and by the society as a whole at its June meeting at Atlantic City. It explains how the tests are applied and the significance of the results obtained.

This work is authoritative, Committee D-2 being composed of the technical representatives of both manufacturers and consumers of petroleum products, and also being the body which formulates and standardizes tests to be used in the valuing of oil products.

NATIONAL PETROLEUM NEWS by special permission, will publish this report in serial form, believing it will go far to clear up some of the misunderstandings that exist as to the characteristics of oil products and methods of testing them.

The topics covered are: gravity, color, cloud and pour points, melting point of paraffin wax and petroleum, viscosity, consistency, volatility, tests for illuminating oils, wick feed test, water and sediment, precipitation, emulsification, oxidation at high temperatures, dielectric strength, carbon residue, acidity in gasoline, neutralization number, total sulfur, doctor test, corrosion tests, protection tests, saponification number, analysis of grease. The committee's report follows:

FOREWORD

THE rapid growth of the petroleum industry has been accompanied by the development of a variety of physical and chemical methods for the testing of petroleum products.

Degrees A. P. I. =

Physical tests are more widely used than chemical tests. This is natural, in view of the fact that the utility of petroleum products depends to a large extent upon their physical characteristics. Some of these physical tests are of little value except as they serve the refiner in controlling manufacturing processes, while others are useful both to consumer and to manufacturer as an index of the value or fitness of products for particular uses.

Such chemical tests as now exist serve principally to protect against impurities or undesirable constituents. This is because petroleum is an extremely complex raw material, varying greatly in composition in the various producing fields, with each new field bringing its own peculiar problems. Little is known about the chemistry of petroleum at the present time, but it may reasonably be expected that a considerable advance along this line will be made in the future.

The proper choice of tests and the assignment and proper numerical values to specifications based upon these tests is of fundamental importance. Failure to meet this requirement tends to increase the cost of the product to the consumer and adds to the burdens of the manufacturer.

The activity of Committee D-2 on Petroleum Products and Lubricants of the American Society for Testing Materials has resulted in the standardization of the more important of the older tests. This work has been of particular importance because the empirical nature of many of the tests renders it necessary to specify details of procedure which are essential to ensure uniformity of results. The committee has also developed many new tests and is continuing its work in this field.

The purpose of this report is to meet the need for authoritative information regarding the applicability of the tests for petroleum products and lubricants now in common use in this country, and the significance of results obtained.

GRAVITY

THE gravity of a petroleum oil is a numerical value which is an index of the weight of a measured volume of the product. There are two scales in general use in the petroleum industry, the specific gravity scale and the A. P. I. gravity scale.

The specific gravity of an oil is, according to the general custom of this country, the ratio of the weights of equal volumes of oil and water, both weights being determined with the liquid at a temperature of 60 degrees F. (15.56 degrees C.) and both weights being corrected for the buoyant effect of air. The temperature limitations are indicated conveniently by the expression "Specific Gravity 60/60 degrees F." An exception to this general rule exists in the case of petroleum products used as asphalts and road oils. For these products it is standard practice to use the temperature of 77 degrees F. instead of 60 degrees F.

The A. P. I. gravity of an oil is a mathematical function of the specific gravity, as defined above. The relationship is indicated by the following equation:

$$\text{Degrees A. P. I.} = \frac{141.5}{\text{sp. gr. } 60/60^\circ \text{ F.}} - 131.5$$

The figure 141.5 is termed the modulus of the A. P. I. scale.

Specific gravity is generally used in Continental Europe and in many other countries. It is also in rather extensive use in the United States, especially when export business is involved. The A. P. I. (American Petroleum Institute) gravity scale is generally used in the United States. It was formerly known as the Baume scale, the name being changed to avoid confusion with the other Baume scales, particularly the one based upon a modulus of 140.0. The A. P. I. scale differs from this Baume scale by amounts ranging from one-tenth of one degree or less for heavy fuel oils up to seven or eight-tenths of one degree for natural gasoline.

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Carloads, Tank Cars, and Cargoes.
For Domestic or Export.

GASOLINE KEROSENE NAPHTHA
CRUDE OIL FUEL OIL GAS OIL FURNACE OIL
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A SHORT "joy ride" from a nearby city—a quick attack upon your filling station, and the thieves return to their haunts well supplied with cash.

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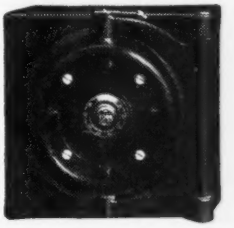

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Norman H. Landman's 5 Methods
of
KEEPING OLD CUSTOMERS—AND MAKING NEW ONES

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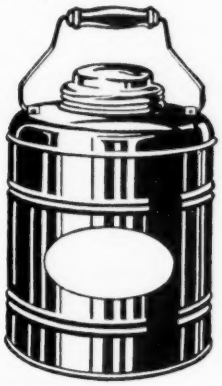

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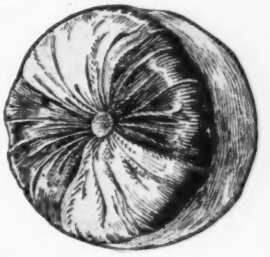

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Please send me full information concerning your method No. 1 ☐ No. 2 ☐ No. 3 ☐ No. 4 ☐ No. 5 ☐ (*Check method desired*)

Name.....

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THE CHANGE IN CALLS FOR "AIR"

Six Uses Now Where Formerly But One

All manufacturers of Air Compressors were formerly kept busy proving to station operators that an investment in "Free Air" would bring new trade to their station. And—it did—and does. But what a change there is nowadays.

Air Is Not "Free" On Many Jobs

There is engine cleaning, car cleaning, inside and outside, grease racks to be operated, gas dispensing systems and many other calls for air, every one of which pays a cash return for the service. The demand for tire inflating must still be met, and it still brings trade to the station, but we have a constantly increasing demand for air for these new "cash" jobs.

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Capacity 9¼ cub. ft. of clean air every minute.

All trouble-makers have been eliminated.

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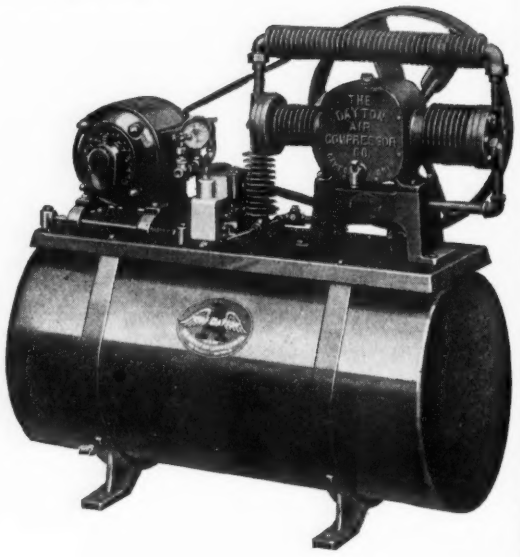

DAYTON AIR COMPRESSORS

425 Valley St. **Dayton, Ohio**

Gasoline And Other Motor Fuels

by Ellis and Meigs, is a book which gives a complete survey of the field and a description of practically every process of making gasoline and most other motor fuels of promise or prominence.

The price of the book is $10. Just send us your check and we will mail a copy of it to you.

National Petroleum News, 1213 W. Third St., Cleveland, Ohio

It is of importance to point out that European practice in reporting specific gravity differs from that of the United States. The custom in Europe is to report the ratio of the weights of equal volumes of oil and water, the former at a temperature of 15 degrees C. (59 degrees F.) and the latter at a temperature of 4 degrees C. (39.2 degrees F.). The weights are not corrected for the buoyant effect of air. When specific gravities are reported according to this system, the weight of a specified volume is directly proportional to the specific gravity of the oil. When specific gravities are reported according to the system in use in the United States, calculation of the exact weight of a specified volume of oil is not as simple. This, however, is not a serious disadvantage, as the accurate and comprehensive tables[1] published by the Bureau of Standards include figures for the weights per gallon of oils of different A. P. I. and specific gravities.

The preceding statements apply to liquid petroleum products and not to solid and plastic materials such as paraffin wax and petrolatum. These materials are almost universally sold on the basis of weight instead of volume, so that tests for their gravity are relatively unimportant.

Scope of Methods: There are two general methods of determining gravity, both of which are accurate, provided apparatus and operating procedure are correct. The most important is probably the one which may be described as the constant weight-variable volume method and is exemplified by the determination with the hydrometer (see A. S. T. M. Tentative Method of Test for Gravity of Petroleum and Petroleum Products by Means of the Hydrometer (Serial Designation: D-28T). This method involves the basic principle that when an object floats in a liquid it displaces a volume of liquid equal in weight to that of the floating mass. The hydrometer is, therefore, an instrument which measures the volume of a liquid which corresponds to its weight, and is essentially a measuring graduate with the liquid on the outside instead of the inside.

The other general type is what may be described as the constant volume-variable weight method and is exemplified by the use of the pyknometer or the hydrostatic balance.

The determination of gravity with a pyknometer involves weighing an accurately determined volume of oil in a suitable container. There are numerous types of pyknometers, the familiar specific gravity bottle being, perhaps, most generally used.

Measurement of gravity with a hydrostatic balance involves determining the weight required to overcome the buoyant effect of the oil upon a

1 National Standard Petroleum Oil Tables, U. S. Bureau of Standards *Circular No.* 154.

totally immersed plummet of predetermined volume. The Westphal balance is an instrument especially designed for the rapid and convenient determination of this weight.

Hydrometers manufactured in the United States are calibrated to indicate gravities corrected for the buoyant effect of air. When gravities are determined with the pyknometer or hydrostatic balance, corrections must be made for the buoyant effect of air on the weights, if it is desired to obtain results identical with those indicated by the hydrometer test.

Significance and Applicability of Results: Petroleum products are frequently sold on the basis of volumes delivered corrected to 60 degrees F. These volume corrections are made by the use of approved tables[2] which show the magnitude of the correction as a function of the gravity of the product, regardless of its source of character. The gravity of a petroleum product must, therefore, be known whenever volume corrections are to be made.

In some cases, as for example the delivery of petroleum products in barrels, it is customary to determine weights and calculate volumes by dividing the weights of the contents of the barrel by the weight per gallon. The latter figure is, of course, a function of the gravity of the product.

The property of gravity is of importance in the control of refinery operations. The test is quickly and easily made and furnishes information which is useful for process control.

Gravity is of little significance as an index of the quality or usefulness of a finished product and its use in specifications is to be avoided.

2 National Standard Petroleum Oil Tables, U. S. Bureau of Standards *Circular No.* 154; A. S. T. M. Standard Abridged Volume Correction Tables for Petroleum Oils (D 206-25).

Marketer Advertises with Airplane

GREENVILLE, Ala., July 6.—C. E. Whiddon, president of the Greenville Woco-Pep Co., Greenville, Ala., recently used two airplanes to fly over Greenville for several days advertising Woco-Pep gasoline. Several people went for a ride while the advertising stunt was going on.

American Republics Sells France Fuel

NEW YORK, July 7.—The Petroleum Export Association, Inc., of New York, and Houston, a fully owned subsidiary of American Republics Corp has contracted with the Republic of France to furnish a substantial part of the fuel oil requirements of the French navy from June 15 to Dec. 31, 1928.

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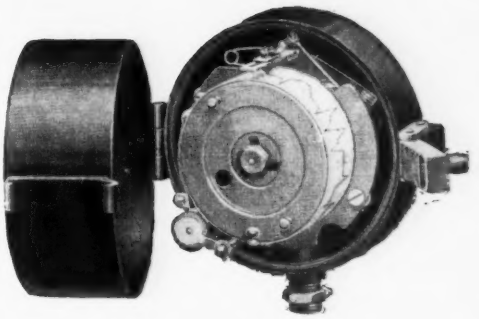

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We will show you how to make the most of your mileage data. Our systems of keeping commercial vehicle account are simple and practical. We will be glad to send them to you. Just pin the coupon below to your letterhead and mail it *today*. No obligation at all.

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NOT one man in a thousand possesses expert knowledge that qualifies him to pass critical judgment on a suit of clothes. He has neither time nor the inclination to be an expert on the infinite number of articles he buys.

In his mind that label is a warranty of value —a personal promise of complete satisfaction from the manufacturer. He takes it for granted that the manufacturer whose name appears on the label knows his business. So he buys on confidence.

And the confidence of the buying public has become so integral a part of the success of manufacturer that he dare not jeopardize it by slighting value.

The American Steel Package Company was founded on the ideal of manufacturing a product identified with a high degree of value and during years of manufacture we have constantly strived to add to the esteem in which Defiance Steel Barrels are held among buyers in the oil field.

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100% Pennsylvania or Western Blends

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Oldest Pennsylvania Refiners

Joins Research Company On Pacific Coast

LOS ANGELES— A. J. L. Hutchinson, well known research engineer, has resigned from the Standard Oil Co. of California and associated himself with the Engineering, Research & Equipment Co. of Los Angeles and Dallas, as research engineer.

Mr. Hutchinson is a graduate of Stanford University. From the time of his graduation in 1919 until December, 1921, he was with the U. S. government, located at the Helium plant at Petrolia, Texas; Standard Oil Co. of California, Wallace Refineries, Taft; and Wallace & Brooks, Breckenridge, Texas. During 1922 he was employed as research chemist for the Midwest Refining Co. at Salt Creek, Wyo. During 1923 and until April, 1924, Mr. Hutchinson was at the California Institute of Technology, doing research work on gas analysis. In April, 1924 he was employed on research work by the Pacific Gasoline Co. When this company was purchased by the Standard Oil Co. of California, Mr. Hutchinson was transferred to the research and development department of the Standard Oil Co.

His broad experience in research work and plant design, along the lines required for gasoline plant and fractionation work, will be of great value to both the company and the clientele.

Pennsylvania Crude Oil Association Meets

CLEVELAND, July 10.—The fifth annual meeting of the membership of the Pennsylvania Grade Crude Oil Association was to be held in the Knights of Columbus club, Bradford, Pa., July 9, according to an announcement sent out by R. J. Alexander, secretary of the association.

The meeting was to begin with a luncheon at 12:30 p. m. and be followed immediately by an open forum business session.

A report of the activities of the association during the year and the results accomplished was to be made by the secretary and remarks were to be made by producers from various sections of the Pennsylvania, New York, West Virginia and Ohio fields.

Mark Cowden Goes to Europe

WARREN, Pa., July 7.—Mark Cowden of the Pennsylvania Oil Products Refining Co. sailed today for Europe on the Aquitania. Paris will be the first stop, with trips into Germany, Switzerland and other countries. It will be a two months trip. He will be accompanied by his son, W. H. Cowden.

How Trouble Can be Avoided in Running Ordinary Batch Still Battery

By Paul Runge*

Paul Runge

While many mechanical appliances have been invented to reduce the hazards of operating ordinary batch stills, nevertheless there remains the human element—certain rules the operator must follow to enjoy success with a minimum of danger.

In the accompanying article Paul Runge discusses in detail the "musts" and the "must nots" which should be observed in operating a battery of horizontal shell stills. He carries the instructions through from start to finish in a word picture which, if followed carefully, leaves little room for accidents.

CONTINUOUS operation of horizontal stills, although being replaced to a great extent, still holds a very prominent position in the distillation of crude oil.

Recent developments and improvements made on equipment of this type already installed, based upon the principle of water tube boilers permitting of greater heat transfer with corresponding increased velocities and over-all efficiencies, has been the cause of stimulating efforts toward improving rather than discarding this type of equipment in favor of the continuous tube still with its difficult problem of continuous fractionation.

Unfortunately, the step forward from shell to tube stills does not lend itself readily to the utilization of equipment already installed, therefore a financial problem of considerable importance must be faced before making a change.

No one other refinery operation depends upon the human element to the extent that does distillation with horizontal stills. The large amount of oil being processed at one time and the innumerable possibilities of leaks with the almost hopeless task of extinguishing a fire which has gained headway, until the equipment is utterly ruined makes it a dangerous operation at best.

Modern refining calls for such rigid specifications that it has been found impossible to obtain the desired results by depending upon the human element. Therefore, many improvements such as temperature recorders and controls, liquid levels and other forms of regulators have been installed. Unfortunately, most of these appliances are not fool proof and must therefore be carefully inspected and watched at all times for should they fail to function properly, serious results may be expected unless detected in time.

An example of an installation, the type of which should be avoided as much as possible is the liquid level regulator, which is installed inside of the still, making it inaccessible for inspection unless the still is off.

A new type of temperature regulator and control which has within a short time been patented has shown the possibilities of temperature control and goes a long way in insuring proper operating conditions with the result that better products are made and the life of the equipment is prolonged.

Unfortunately, it is human nature for an operator to become optimistic and often careless when everything is going along smoothly and it will be found that just at this time trouble may be expected. Unless the operator is made to appreciate the disastrous results which may occur should any mechanical installation cease to function, results may be serious.

It is the intention of this article to describe in a general way all phases of the operation of a battery of horizontal shell stills, pointing out what should be done and what might be expected should a mistake be made in the operation.

In order that this article should represent typical conditions such as would be found in connection with any battery of stills of this type it will be assumed that this particular installation consists of 12 stills each of 1000-barrel charging capacity, with fractionating equipment consisting of two aerial type condensers to each still making it possible to obtain 36 streams into the tail house.

It is further assumed that the battery of stills is off for final inspection both internal and external, the internal inspection including the following:

Still bottom should be free of pitch or scale. All foreign materials such as bolts, nuts, pieces of paper, wood or rags should be swept out.

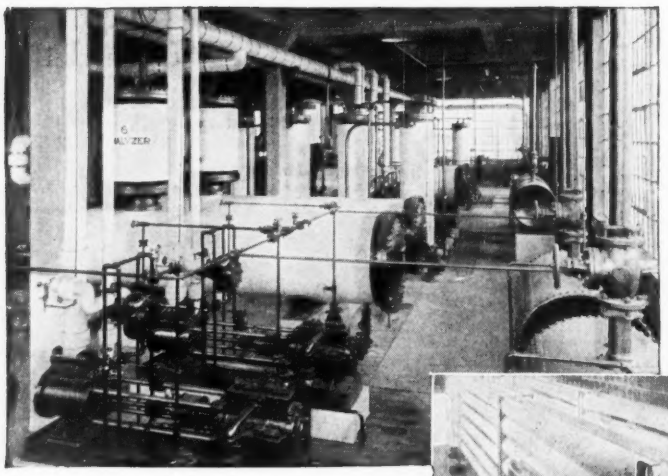
Steam top and bottom (spray) should be inspected to make sure that lines are clear, especially perforations in bottom steam line which may become clogged with rust.

Perforations in bottom steam line should be directed against the still bottom. After this inspection has been completed any water which may have accumulated should be wiped out.

External inspection should comprise the following:

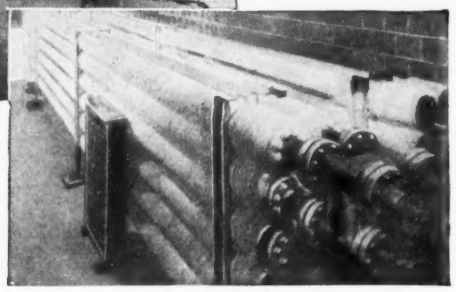
Safety and vacuum valves should operate freely and be well lubricated with a mixture of oil and graphite.

*Refinery engineer, New York.



An absorption installation in a large mid-west refinery. Capacity 600 tons.

Below — Carbondale chilling machine installation.



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Gauge cocks and glasses should be opened and blown out.

Columns should be installed so that upper arm is connected into or near the top of the still, thus enabling a constant flow of clear vapor into the top of the same, preventing any discoloration of the glass.

Lower connection should be insulated especially where heavy residues are present.

Gauges should be of ball check type with chains attached to the arms to enable an operator to close them from the ground.

Valves open and shut all flow line, charging and pumping out valves to be assured that they are in proper working order.

Where new valves are installed they should be opened and closed once a day and oiled until such a time that they may be operated alone and quickly by one operator.

Pumping out lines should be blown out to make sure that they are clear. This is very important and especially so in cold weather.

Pumps should be operated to ascertain that they are in good condition. Before plating up stills the heads should be scraped clean of any coke or portion of the previous gasket which may have adhered to the surface. Before a suitable gasket is applied it should be painted with a mixture making their removal easier.

There are many individual ideas as to the charging and starting up of stills but the simplest and safest method has always proven the best.

Before charging, all flow line valves should be shut, safety valve lifted and a crack of steam placed in the still. When steam escapes from the safety valve charging is commenced.

The last or pumping out still should be charged first and when still contains about two feet of oil the bottom should be inspected and fires may be lighted.

After fires are lighted safety valve may be dropped and the still charged to the three quarter mark after which the steam may be shut off. If for any reason the heat is withdrawn the top steam should again be turned into the still. Heat should be so regulated that stills are run off at a rate which will insure the last still being ready to pump out by the time the first still is charged as determined by the charging capacity.

In the course of charging a sample should be taken from each still and a gravity test made. After still is charged it should be tried for water. When the last still is about half charged the top steam should be turned into the next still so that stream may be turned in without shutting down the pump. After the second still has been charged, flow line between the two may be opened and this procedure followed until all stills are charged and fired.

The above method of charging and

starting up of a battery of stills is applicable where the drop in the still level is in the neighborhood of two or three inches. Stills which show a successive drop of five to six inches should be handled as two individual batteries which is accomplished by keeping the flow line valves between the sixth and seventh still shut until pumping in has been started after which they may be slowly opened.

The charging of the first five or six stills and flowing of hot oil into the others is practised to a great extent but is not recommended, due to the large number of difficulties which may be encountered and upon which must be depended the human element entirely.

In flowing the first still the operator's natural timidity ensures the satisfactory conclusion of this operation but with each successive still this is overcome with the desire for speeding up this operation or the desire to make a showing. Carelessness and chance taking is introduced with the usual disastrous results. The following list comprises the difficulties which may be met due to the careless handling of this operation:

Flashing of oil when introduced into cold still where still has not been properly steamed.

Formation of vacuum due to sudden cooling where steam has not been introduced or when suddenly shut off.

Boiling over where water has not been drained out.

Leaking of bottom seams and around lugs due to uneven expansion.

As stills come over and the distillates become clear, gravity tests should be made and streams turned into their proper tanks. After the gasoline has been run off, steam may be turned into the still slowly at first and increased in amounts so that by the time the temperatures are up that most of the required steam will have been turned in.

The steam valve should be as close as possible to the still and a suitable drip installed so that all traces of condensation may be eliminated.

When the stream from the last still (first charged) is within two to three degrees A. P. I. of the desired gravity, the heat on all the stills is increased. When the increase manifests itself, pumping out should be started, slowly at first to avoid any unnecessary strain upon the equipment. As soon as the heat exchanger shows signs of heating up charging may be started very slowly and increased in amounts as the temperature of the charging stock increases.

The method of charging crude into the first still should be given consideration. In some cases the charging line enters at the top and extends to within a short distance of the bottom, dropping directly upon the still bottom. This procedure is not to be recommended as the constant strain

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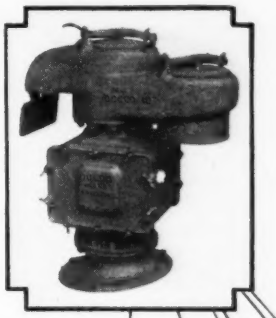
Oceco Conservation Vent Unit consisting of Vent Valve and Flame Arrestor.



IT'S evident from the number of these Conservation Vent Units in use today that the oil industry has become pretty well "fed up" on evaporation and fire loss—and determined to end it.

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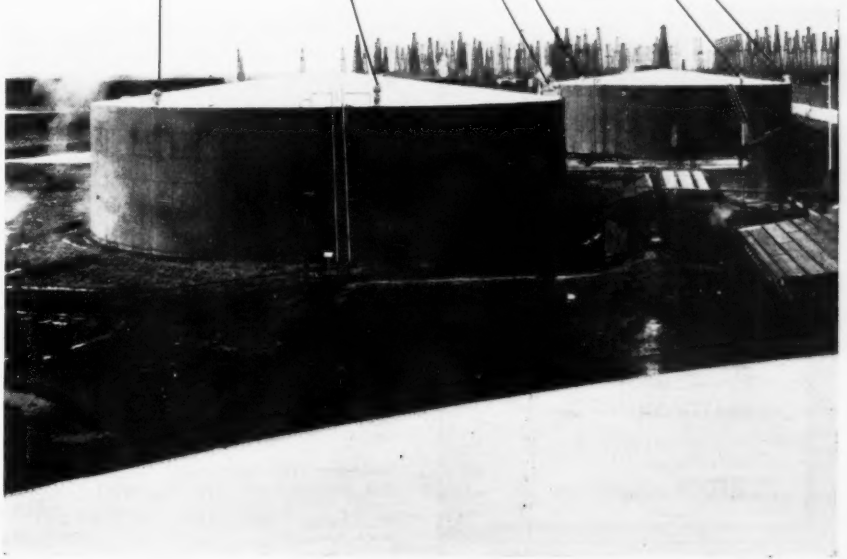

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$89.25
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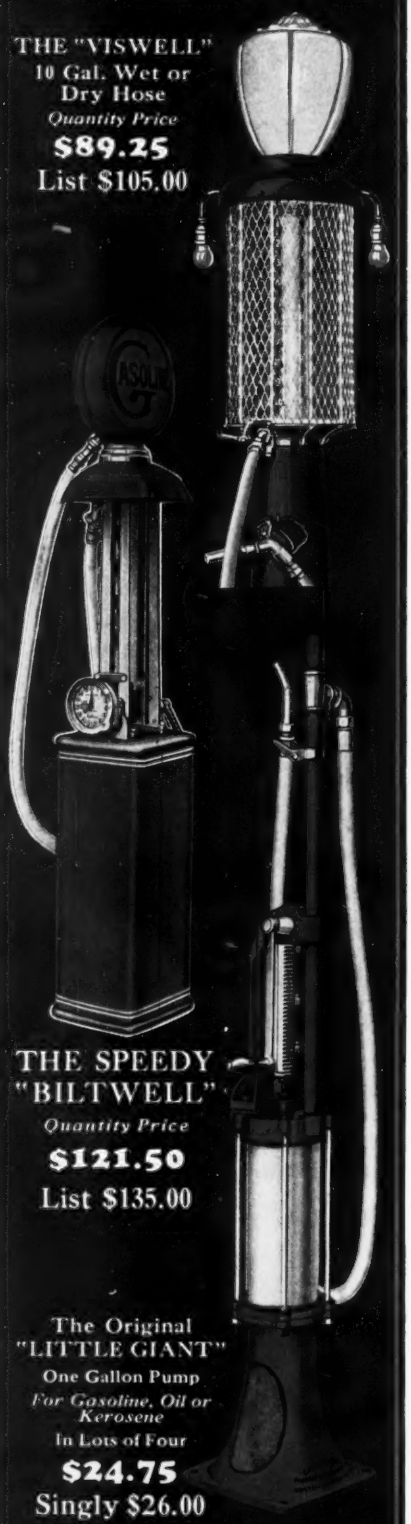

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The Original "LITTLE GIANT"
One Gallon Pump
For Gasoline, Oil or Kerosene
In Lots of Four
$24.75
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upon the still bottom due to the weight of the oil will cause the bottom to bulge at this point.

An ell or tee screwed upon the end of the line will divert the stream and eliminate this condition.

A far better plan is to allow the oil to splash upon a series of trays after entering the still and before coming in contact with the main body of oil to allow for more rapid evaporation of both oil and water. This will eliminate bumping which is caused by a sudden heating up of the water in the bottom of the still to a temperature in excess of its boiling point, with the result that it suddenly rises to the surface of the oil and evaporates with great violence causing considerable vibrating of the still and if enough water be present, blowing the safety valve.

Although bottom steam is often used in all stills, this is not necessary in stills from which gasoline cuts are made, as the heat is not sufficient to cause any injury to the still bottom and at the same time better fractionation is possible without it as the steam mechanically carries over heavy distillates, necessitating a smaller initial yield with a subsequent increase in the amount of re-running.

At the same time more condensing and cooling surface is required with an increase in the amount of cooling water needed, and in cases where corrosion occurs, the trouble is augmented.

Steam in distillation with shell stills plays an important role, its use being, however, not always understood with the result that considerably more is being used than is necessary.

In plants where boiler feed water is treated, considerable money could be saved by checking up on the amounts of steam used. At one plant in order to obtain a certain fuel gravity product, an excess of steam was used, the overhead distillate containing 80 per cent water and therefore run into slop.

The slop upon being rerun contained in the fuel the 20 per cent distillate which as can be readily seen was a costly and useless operation.

The advantages of bottom steam are as follows:

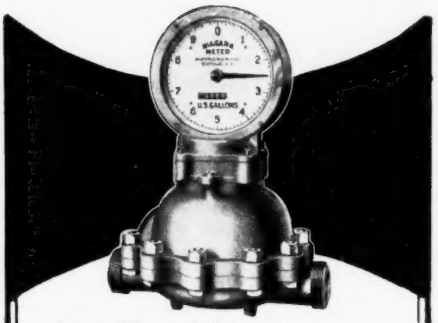
Changes vapor pressure thus enabling oils to distil over which without steam would distil over at a temperature considerably higher with the result that cracking would impair the value of the distillates or bottoms.

Agitates the body of oil thus giving a better distribution of heat.

Prevents overheating of the still bottom.

Prolongs the life of the equipment.

Where overhead distillates are taken off in one cut, treated and rerun as is often done in plants refining a high sulfur crude, steam is very



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Warren, Penna.

beneficial when rerunning to prevent chemical changes of the sulfur compounds due to heat causing a positive doctor.

The average amounts of steam to be used have been fairly well established. However, different operators unless checked will be found to be using amounts greatly in excess of that needed and not obtaining as good average results. In most plants the steam lines for bottom steam are all of the same size and after satisfactory tests are made, regulation is designated by spokes of steam, but unless tests are made previously to determine the amounts represented by the designated spokes of steam, best results can not be expected.

The following amounts represent a fair average to be used:

Gasoline 0-1 lb. per gallon of distillate
Kerosene 2-4 lb. per gallon of distillate
Gas oil 5-6 lb. per gallon of distillate
Wax Dist. 12-15 lb. per gallon of distillate

The following temperatures are recommended but these are subject to change, depending upon specifications desired, market and seasonal demands, type and efficiency of fractionating equipment. In view of the fact that one still is periodically knocked off for repairs or cleaning, it is necesary to change the temperatures to obtain the desired results.

1—285-300
2—330-360
3—390-410
4—450-480
5—510-540
6—570-600
7—620-640
8—655-665
9—670-675
10—680-685
11—690-695
12—700-

There are a number of fundamental requirements which should be observed among which should be mentioned the following:

Oil entering the first still should be at as high a temperature as possible, which is obtained by installing the best possible heat exchanging equipment.

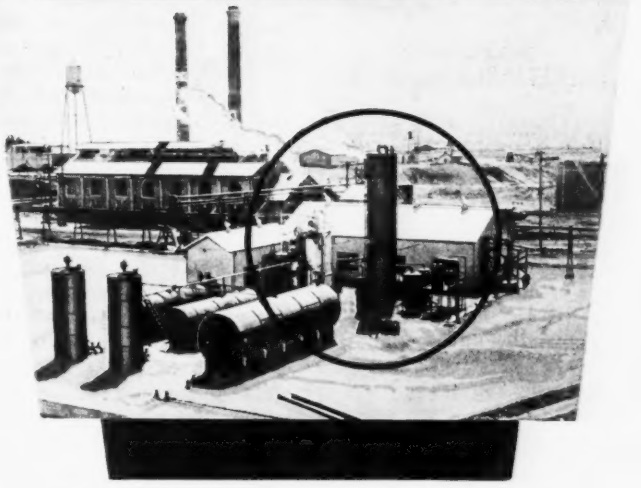
Temperature fluctuations should be kept at a minimum. The amounts of oil charged and residue pumped out should be constant. Any marked deviation reflects itself upon the temperature of the ingoing crude and in turn upon the temperature of all stills.

Oil should be kept in each still through a maximum period of time which is accomplished by allowing oil to enter at one end and flowing out at the other.

Flow line should be of ample size to allow for a free flow of oil from one still to another.

Flow line should be near the bot-

SOUTHWESTERN VAPOR RECOVERY PLANTS



Gasoline Vapor losses from light crude storage, rundown tanks and from cracking plants can be recovered at a profit; at the same time assuring an independent source of rectified blending stock.

Our engineers will gladly make a plant survey and submit cost estimate for your approval.

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Try a GOTT Water Can and you will always be a user. Keeps water pure and cool, easy to carry and always near. Made in 1½, 3, 5 and 10 gallon sizes.
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H. P. GOTT MFG. CO.
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KEEP PURE WATER ALWAYS HANDY

The Granberg Petroleum Meter

A SIMPLE and RELIABLE Instrument

THE GRANBERG METER
is designed for use in all branches of the petroleum industry where the accurate measurement of petroleum is required.

Its freedom of movement makes it well adapted to installations which must operate on low gravity heads.

Catalog upon Request.

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Clean pumps attract gallonage!

IT'S the *clean* gasoline pump that gets the business in preference to the dirty one, every time!

Keep *yours* bright and attractive by cleaning them with Oakite. Go over them *now* with an Oakite solution —a quick, easy and SAFE way to freshen up paint and brighten globes and visible bowls. *It's good business!*

Write for interesting booklet that tells how to do *all* filling station cleaning jobs easier and better. Sent on request.

Oakite Service Men, cleaning specialists, are located in leading industrial centers of U. S. and Canada.

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42C Thames St., New York, N. Y.

OAKITE
Industrial Cleaning Materials and Methods

tom of the still to allow the bottom or heavier oil to flow to the still next on the line.

Oil level should be kept as near as possible to the half mark to allow for better fractionation and to prevent pucking.

With the above described installation operating under normal and proper conditions the following throughput may be expected:

Hourly throughput—25,000 gallons.
Daily throughput—14,280 barrels.
Overhead distillate—88 per cent.
Residue and loss—12 per cent.

Where a plant is not interested in asphalts, the residue with its high melting point and low cold test may be an undesirable product to store. Numerous methods are used to handle this residue, among which are coking and blending.

Coking in batch stills is done by pumping the residue direct from the last still, having first taken the usual precautions of heating the still by steaming. Bottom steam is turned in as soon as the coils are covered and fires lighted as soon as the still contains about two feet of oil.

The object of this operation is to get the still running as soon as possible and under no conditions to allow it to cool off. Heat should be applied quickly and after charging is completed and temperature increases steam is gradually taken out so that by the time coking temperature is reached all steam will have been taken out.

If heat is not applied quickly or if too little steam be used, a pitch which is very difficult to clean out will result.

Continuous coking has been tried with only little success by means of an especially designed still which attempts to coke the residue as fast as it is produced.

Blending with a lighter oil, usually a gas oil obtained by rerunning of pressure still bottoms or pressure tar itself is a common method of handling low gravity residues. This may be accomplished with a fair degree of success by connecting the suction of the lighter oil tank to the suction of the residue and regulating the respective valves until the proper amounts of each oil is obtained as determined by the gravity of the mixture.

A better method is the use of a smaller perforated pipe which is placed inside of a larger pipe. The lighter oil by means of an individual pump is discharged through the smaller pipe and perforations.

The residue may be stored in heated tanks or may be blended in the tank by agitating with air.

Once a battery of stills is in operation every effort should be made to insure evenness of all operating conditions. The following list comprises the important considerations:

All pumps should be equipped with steam regulators.

Superheated steam should be obtained for bottom steam and traps installed in convenient places.

Steam pressure gauges should be conspicuously placed to enable the operator to check up and notify the boiler room when a drop in the steam pressure occurs.

All oil flows should be metered.

Temperature recording charts should be placed at each still and checked daily against a standard straight steam thermometer.

Flue gas analyses should be made to determine the best operating conditions.

Stream temperatures should be kept fairly constant. The following being in general use:

Gasoline—As low as possible.
Kerosene—90 degrees F.
Gas oil—110 degrees F.
Lub. Dist.—150 degrees F.

In shutting down a battery of stills steam should be turned into each still before bottom steam is taken out. If all stills are to be pumped out they should be run down as far as possible or pumped back into the crude tank to be rerun. All pumping out lines should be blown out before oil is allowed to cool off and in cases where the tank and coil type of heat exchanger is used it should be pumped out.

The most common type of heat exchanger in use is the tank and coil type. This equipment should be operated in a similar manner as a still, namely be equipped with a pressure and vacuum valve, steam line, water draw off, etc.

The shell and tube type of heat exchanger lends itself readily to operations without any particular attention other than pumping out the heavy residue when not in use.

Exeter Oil Co. Buys Clark Lease

LOS ANGELES, July 6. — The Exeter Oil Co. has purchased from the R. D. Clark Oil Co. what is known as the 106-acre Kentucky lease, north of Fillmore, Ventura County.

The first well on this lease was drilled in 1899 and a few wells are still on production. The wells are shallow, ranging from 350 to 1200 feet in depth and produce 27 gravity oil. This company makes a practice of buying only proven acreage.

Wham Joins Chicago Law Firm

CHICAGO, July 6. — Benjamin Wham, a Chicago attorney who has specialized in matters pertaining to the oil industry for several years and has a wide acquaintance in the trade, this week associated himself with a long-established law firm of Chicago. The new construction now is Dickinson, Smith, Farrell & Wham.

The firm's quarters are in the same building where Mr. Wham's office has been for a number of years, Illinois Merchants Bank Bldg.

100% RECOVERY of CLEAN CORE with a HUGHES CORE BIT~

Use of the Hughes Core Bit assures perfect recovery of the core in both hard and soft formations.

The Hughes Time Limit Valve with the double tube construction allows the operator to wash all caving from the bottom of the hole before starting to core. It also prevents the flushing mud from contact with the core while coring, leaving a clean, unwashed core.

Write for complete information.

15 feet of core taken in a 15 foot run from the 2,650 foot sand in Magnolia Petroleum Company's Reed No. 1 in the Canadian River Bed at Allen, Oklahoma.

Reading from left to right—the men in the picture are:—O. Rice, C. H. Hardin, M. Fields, E. Whitlock and Sidney Ritchey (Driller).

A 7 7/8 Hughes Core Bit was used taking 3-3/16" core.

(By MORGAN)

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Woolworth Bldg.
New York City

A.P.I. Offers Posters on Use and Care Of Field Equipment

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, July 6

POSTERS illustrating or emphasizing the salient points of the American Petroleum Institute's codes on the care and use of equipment are available now to oil operators through the Institute's standardization division at Dallas.

The work has as its object a direct presentation of recommended methods in the proper care and use of oil field material to field men, superintendents, drillers and all others connected with the handling of equipment used in development and the production of petroleum.

Poster No. 1 on the institute series[1], illustrating the scope of the standardization program, was widely circulated throughout the industry early in the present year. The standardization division, in charge of Carl A. Young, 1508 Kirby Bldg., Dallas, now has ready for distribution four additional posters, copies of which are reproduced herewith.

1 NATIONAL PETROLEUM NEWS, Feb. 29, 1928, pages, 46-47.

The newly available posters are as follows:

Poster Number	Subject	Size; Inches
2	Belting: Care and Use In Field	9x12
3	Wire Rope: Care and Use In Field	17x23
4	A.P.I. Standard Groove Forms for Wire Rope and Manila Cordage	9x12
5	Manila Cordage: Care and Use In The Field	9x12

Posters for distribution will be

(*Continued on page* 83)

Poster No. 5
May, 1928

A. P. I. Recommended Field Practice on Proper Care and Use of Manila Cordage

Storage of Rope

1. (a) Dirty rope should be washed and thoroughly dried before storing. All rope should be thoroughly dry.

(b) All rope should be stored in a dry and well ventilated warehouse. It should be kept as cool as possible but not allowed to freeze. It should not be stored longer than necessary and never longer than one hot season. It may be placed on wooden floors providing same are well ventilated underneath, but it would be better if it were placed on racks. If stored in warehouse with concrete floor the rope should always be placed so that there will be an air space between the rope and floor. Under no circumstances should manila cordage and acid be stored in the same building. If covered with galvanized iron, allow ample space above rope and cover for air circulation.

Size of Sheaves

2. Sheaves should be as large in diameter as possible. The larger the diameter of the sheaves the longer the rope will last. Data covering sheave sizes can be had from many mechanical engineers' handbooks.

Diameter of Catheads

3. It is recommended that the minimum diameter of catheads be 10 inches and that they be made of a wear-resisting material in order that grooving by wear will be minimized. Rope should not be allowed to chafe on cathead when not under load.

Uncoiling Rope

4. (a) Place coil flat with "inside" end down and draw end up through center of coil, to avoid kinking.

(b) An ordinary right laid rope should uncoil counter-clockwise; a drilling cable (left laid) should uncoil clockwise.

Protection Against Mechanical Injury

5. (a) Avoid dragging rope through dirt and oil, since dirt on the surface of the rope increases wear.

(b) Rope should not be allowed to rub on rough surfaces of beams, blocks, etc.

(c) Kinking should be avoided, since it disturbs the "lay" of the rope and is liable to cut the rope in two.

Field Usage

6. (a) It is recommended that old cable be used for "spudding in."

(b) It is recommended that a rope be loaded to not more than 20% of its tensile strength.

(c) Avoid wetting ropes when under load, since wet fibers swell.

(d) The load should be taken off of taut rope when not in service.

(e) A rope should not be subjected to sudden loads.

(f) While drilling, the cable should be loose enough to avoid jerking and tight enough to avoid chafing against the sides of the hole.

(g) Dirt and sand should not be put on bull ropes to increase friction, but twists should be put in, to shorten the lay of the rope.

The Above Instructions Must Be Observed

JOHN DOE OIL COMPANY

(Date..... .....)

By.....
General Superintendent

(*Continued from page* 78)

printed on 150-pound all-jute paper, such as was used for poster No. 1. This is suitable for tacking on warehouse walls, bunkhouses, machine shops and elsewhere. Unlike No. 1, which was distributed free throughout the industry, the later posters will be sold at a nominal charge to cover the cost of printing and mailing.

Posters 2, 4 and 5, will be sold in quantities of 1 to 24 at a minimum charge of $2. Larger quantities will sell for 3 cents to 8 cents each. No. 3 will be sold at a minimum charge of $3.75 for 1 to 24; 8 cents to 15 cents each for larger quantities.

In connection with the sending out of samples of the posters, Mr. Young calls attention to the fact that space has been provided at the bottom of each for the printing of company name, date and signature, which will give the posters the force of company orders for methods of procedure.

"The wording and arrangement for the company instructions and name," says Mr. Young, "is suggestive only; a company is privileged to suggest other arrangements if desired. Note that the space available is limited to one line of 'instructions,' or equivalent wording, and two lines for company name and signature, all at the bottom of the poster.

"Posters may be ordered either with or without the company name and the 'instructions' line, as may be desired, although it is believed that much more effective results will be obtained from the posters if the company name and signature are included. A small additional charge of $1 will be made for such printing any quantity of a given poster ordered at one time."

A. P. I. RECOMMENDED PRACTICE

Poster No. 4
May, 1928

STANDARD GROOVE FORM FOR WIRE ROPE AND MANILA CORDAGE

Forms of Groove for Wire Rope

A-1. The grooves of drilling and casing line sheaves shall be made for 1" rope as standard. The bottom of the groove shall have 150 degree arc support with a radius of 17/32" with a sheave manufacturing tolerance of plus 1/64" minus 0. The depth of the groove shall be 1¾ times the diameter of the rope. The sides of the groove shall be tangent to the ends of the bottom arc. See Paragraph A-2 for size of rope other than 1". (See Fig. 1.)

(NOTE: *The above is calculated in accordance with the basic formula shown in Paragraph A*12.)

A-2. The groove for any other size of drilling and casing line is to be specified by the purchaser, the radius of the bottom of the groove to be:

$$R = \frac{D + t}{2} + \text{Sheave Manufacturing Tolerance of } + 1/64'' - 0''.$$

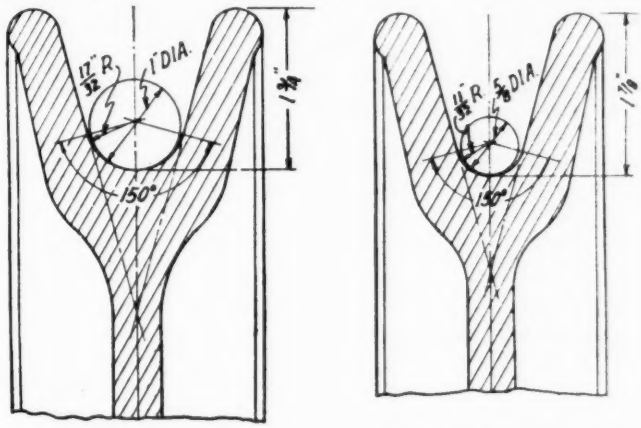
where R = radius of the bottom of the groove, in inches,
D = nominal diameter of line, in inches,
t = specified plus tolerance of line, in inches.

The depth of the groove to be 1¾ times the nominal diameter of the rope, and to have a 150 degree arc of support.

A-3. The groove for sand line sheaves shall be made for ⅝" rope as standard. The bottom of the groove shall have a 150 degree of support, with a radius of 11/32" with a sheave manufacturing tolerance of plus 1/64" minus 0. The depth of the groove be three times the diameter of the rope. The sides of the groove shall be tangent to the ends of the bottom arc. (See Fig. 1.)

(NOTE: *The above is calculated in accordance with the basic formula shown in paragraph A-2, except that the depth of the groove was made three times the diameter of rope.*)

A-4. Sheaves having grooves made according to the foregoing specifications should be marked plainly with the size of line for which the sheave is designed.



A.P.I. standard groove for casing and drilling line sheaves

A.P.I. standard groove for sand line sheaves

To the above Groove Radius may be added a Manufacturing Tolerance = + 1/64" — 0"

Fig. 1.

A-5. It is recommended that the hole in the rope socket and sockets for swivels be 5/32" larger than the line to be inserted.

A-6. Combination sheaves for manila and wire lines are not recommended.

A-7. Grooves on rollers of oil savers should be made to the same tolerances as the grooves on the sheaves.

Forms of Groove for Manila Cordage

B-1. No standard shall be approved for a Crown Pulley having a combination groove for both manila and wire lines.

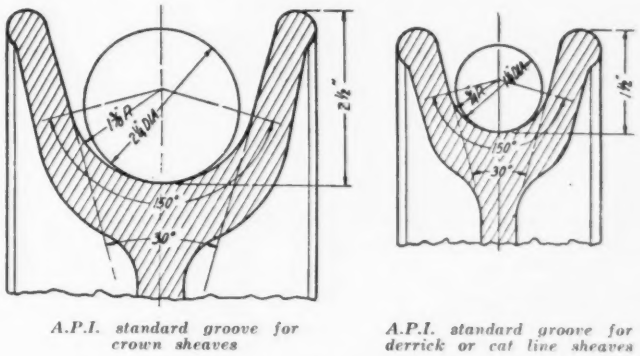
B-2. The groove of the tug rim and bull wheel grooves shall be made for 2½" rope as standard; the undivided angle shall be preferably 60 degrees but in no case greater than 80 degrees; the depth of the groove shall be not less than 2⅛" nor more than 2⅝"; the bottom of the groove shall be made with a ½" radius with a tolerance of minus 0, plus ¼"; the edges of the groove, or tops of the groove, shall be rounded with not less than ½" radius.

B-3. The standard groove for manila drilling cable shall be made for the 2¼" cable. The bottom of the groove shall be an arc with a radius of 1⅜". The sides of the groove shall be tangent to the ends of this arc, and shall have an included angle of 30 degrees. The depth of the groove shall be 2½". (See Fig. 2.)

(*This form of groove calculated in accordance with basic formula given in paragraph B-5.*)

B-4. The groove in the derrick line sheave shall be made for 1¼" manila rope. The bottom of the groove shall be an arc with a radius of ⅝". The sides of the groove shall be tangent to the ends of this arc, and shall have an included angle of 30 degrees. The depth of the groove shall be 1½". (See Fig. 2.)

(NOTE: *The above is calculated in accordance with the basic formula in paragraph B-5.*)



A.P.I. standard groove for crown sheaves

A.P.I. standard groove for derrick or cat line sheaves

Fig. 2.

B-5. For sheaves for any other size manila drill lines, and other manila lines, the bottom of the groove shall be an arc having a radius equal to

$$R = [D+t)\ /2] + 1/8''$$

where R = radius of bottom of groove, inches
D = nominal diameter of line, inches
t = specified tolerance in line diameter, inches

The depth of the groove shall be 1⅛ times the nominal diameter of the line.

The sides of the groove shall be tangent to the ends of the arc forming the bottom of the groove and shall have an included angle of 30 degrees.

N. B.: *The radius "R" should be expressed in values not less than sixteenths of an inch. Should the solution of the above equation result in a fractional part of an inch smaller than 1/16", the value found should be increased to the next higher sixteenth.*

The Above Instructions Must Be Observed.

JOHN DOE OIL COMPANY

BY .....

(Date) General Superintendent.

Koch Station Co. does not pretend to have a special architectural style for service stations. They build them in harmony with their surroundings. This one is in a good residence district of Evansville; the company's most handsome outlet

Koch's Recipe for Serving the Needs Of the One Car Customer

By Ward K. Halbert
N. P. N. STAFF WRITER

EVANSVILLE, July 6

JOHN BUTSCH was stumped. The little oil marketing business he managed but did not own, had encountered some rough going. Competition was multiplying. Filling stations were springing up on every available streetcorner.

Opportunities to buy gasoline were being thrust under the nose of the motorist at every turn in the road and patronage was being divided among many outlets. Big companies with costly stations and national advertising were making a strong bid for business, local and transient.

Gross spread was wide enough, when viewed on paper, but the scramble for gallonage was becoming ruthless. Little dealers were cutting prices and major operators were doing the same thing, dignifying it with a formal document called a Quantity Discount Agreement.

"What can we offer that our competitors do not have?" Mr. Butsch asked himself. "What can we do for the trade that they are not doing?" And in an inspired moment the answer came:

"In their race for big accounts they have neglected the small customer. They have forgotten the owner of one car who pays the top price, requires the least service and does not ask for credit. We will concentrate on the small customer and make a special service to please him."

This was about two years ago, and now there are nearly 1500 customers of record in the office of H. F. Koch Stations Co., who have acquired habits of regularity in lubricating their automobiles, without any conscious effort on their own part. Mr. Butsch has a young woman hired to do a little light thinking every day on behalf of his small customers.

The customers are relieved of worry about their oil requirements, but they enjoy lower operating costs, enhanced comfort in motoring and increased resale value on their automobiles any way and they appreciate it. The company has only six stations and therefore averages 250 regular, consistent, motor oil customers per station, besides sporadic trade.

Mr. Butsch's plan is not new to the oil industry. Practically every oil jobber in the country has the "makings" of it already in his office. It consists of a perpetual daily service station inventory coupled with a complete lubrication follow-up system. One girl does all the work in two hours a day.

The key to the whole program is a yellow sheet of paper about the size of a tank wagon ticket, called Form 20. These little forms are kept at all service stations and are filled out by the customers, not by the station salesmen. Form 20 is reproduced in an accompanying cut, shown pinned in the corner of the daily station sales report. The two reports belong together.

Digressing briefly, it is necessary for any student of this system to know that the men who work for H. F. Koch's stations are considered to be on duty 24 hours and off duty 24 hours. They work from 11 a. m. to 11 a. m., changing shifts just before noon each day. The same man opens the station every morning who closed it the night before and all cash is banked during banking hours.

Every station man keeps a record of his day's work on the big form called a "Daily Sales Report," 18 x 24 inches. Careful examination of the daily sales report will show that it makes a detailed record of the sale of all motor oils and grease, both in bulk and package goods. But gasoline sales only show up in the summary and "re-cap." The daily sales report shows where every gallon of motor oil went from every station every day, but shows gasoline sales only in gallons per pump.

The lubricating oil record is so minute that it is proof against tampering. When the auditor checks up

"My *Night* Business has *Doubled* Since I put in Your Pump"—

—writes a pleased station owner on the Lincoln Highway.

"The way your spot-lights make the pump shine out in the darkness is wonderful." It's the only thing you can see for two blocks away!

"The other station owners on the opposite corners are disturbed at the way I'm getting their after-dark trade—and mine is the most unsatisfactory corner of the three, as to location.

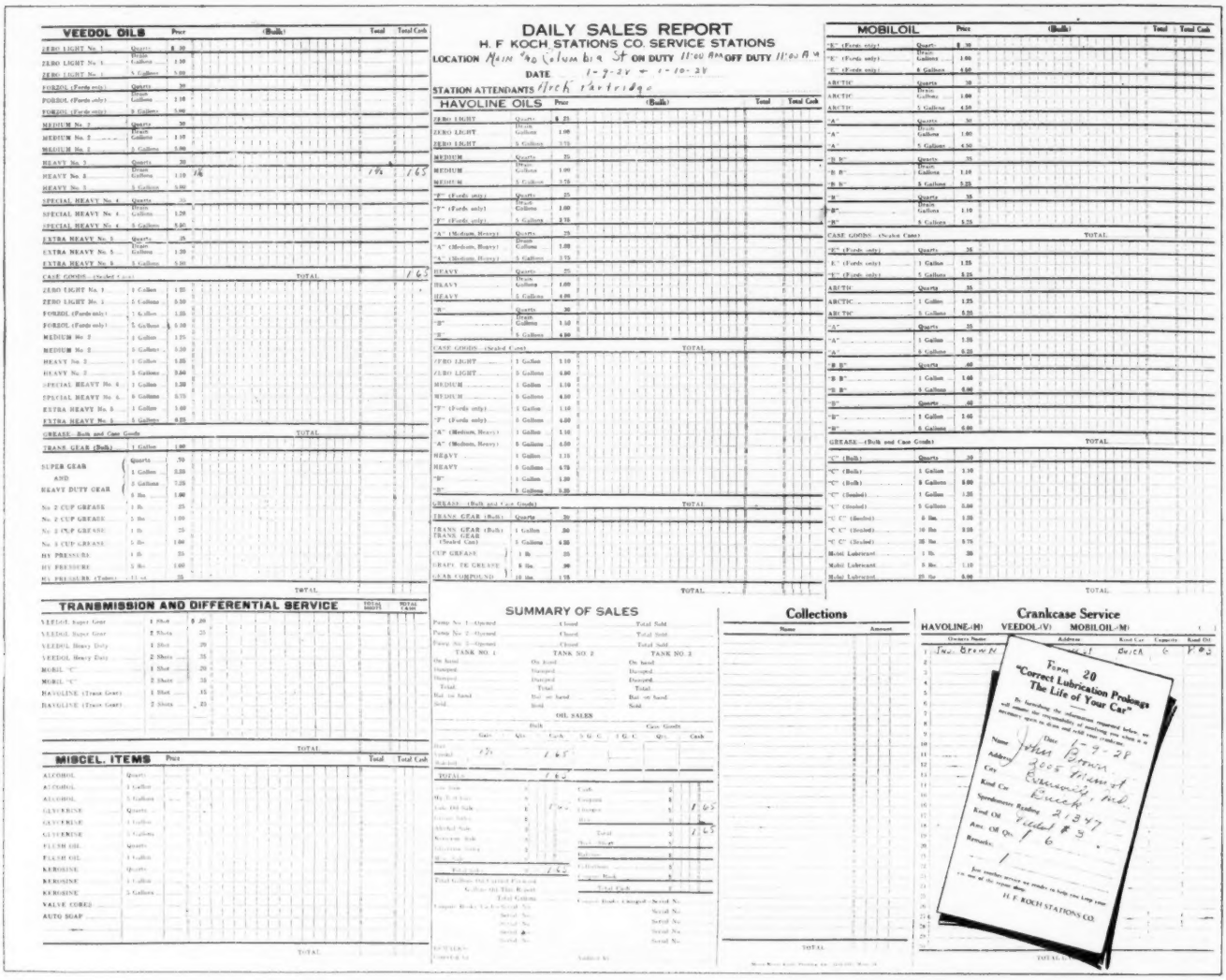
"What's more these night customers come back for day-fillings, because they like the speedy, accurate service we give."

is illuminated by the spot-lights under the dome. The pump, and for 10 feet around, is bathed in a concentrated flood of white light that makes the pump stand out like a glistening ruby in an ebony setting.

A wonderful trade-winner. And it holds the customers on the basis of speedy, accurate and visible service.

Write today for Bulletin and descriptive literature.

Tokheim Oil Tank & Pump Co.
Fort Wayne, Indiana



The daily service station sales report reproduced here is actually 18 x 24 inches. One is forwarded from every sales station at noon each day. Motor oils and greases are minutely accounted for. Pinned in the corner is Form 20 which is made out by every customer every time he changes oil

on daily sales and compares the figures with the day's cash receipts all discrepancies naturally show up in terms of gasoline. If a discrepancy develops beyond the ordinary tolerance allowance a representative from the office visits the station and looks for the outage and its cause.

But it is the motor oil record, which includes the name of every customer who changes oil, that this account aims to cover. As previously mentioned it starts with Form 20. When a customer drives his car on a drain pit at one of H. F. Koch's stations he is handed a pencil and pad by the salesman in charge of the pit. The pad is made up of Forms 20. The salesman politely asks the customer to fill it out. The type at the top of the sheet explains itself. It says:

"Correct lubrication prolongs the life of your car. By furnishing the information requested below we will assume the responsibility of notifying you when it is necessary again to drain and refill your crank case."

On the lines provided the customer simply fills in his name and address, the make of his car and its speedometer reading, and the amount and kind of oil he is buying. While he is doing that the attendant is busy. The customer knows that his questionnaire is not delaying the service on his car. It has almost proven that men would rather fill out a blank that be asked a string of questions verbally.

When the change of oil has been made the attendant receives his pencil and pad check from the customer. If the customer was from another town the address shows it. If he is a resident of Evansville but never patronized an H. F. Koch station before, the attendant writes "new customer" on the margin of Form 20 for the convenience of the office force.

The station salesman keeps his Daily Sales Report much like those of other companies do, but when he goes off duty at 11 a. m. and turns in his record of sales and cash, all the Forms 20 which have accumulated during the day accompany the daily sales report. They are corroboratory record of daily sales but, more than that, they make up a live list of customers.

When a bundle of these little yellow slips reaches the main office it is opened by the girl who has charge of the "Cardex" file. A copy of the special card (Form 10) is shown herewith. She spreads the information from Form 20 on the cards of the permanent office file. For example:

She finds a Form 20 made out by John Brown at 2005 Main street, showing that on Jan. 9, 1928, he had six quarts of Veedol heavy put in his crank case. The form came in with the sales report from the Main street station so that is where it happened. The young woman turns to John Brown's card in the file and makes the entry on a single line.

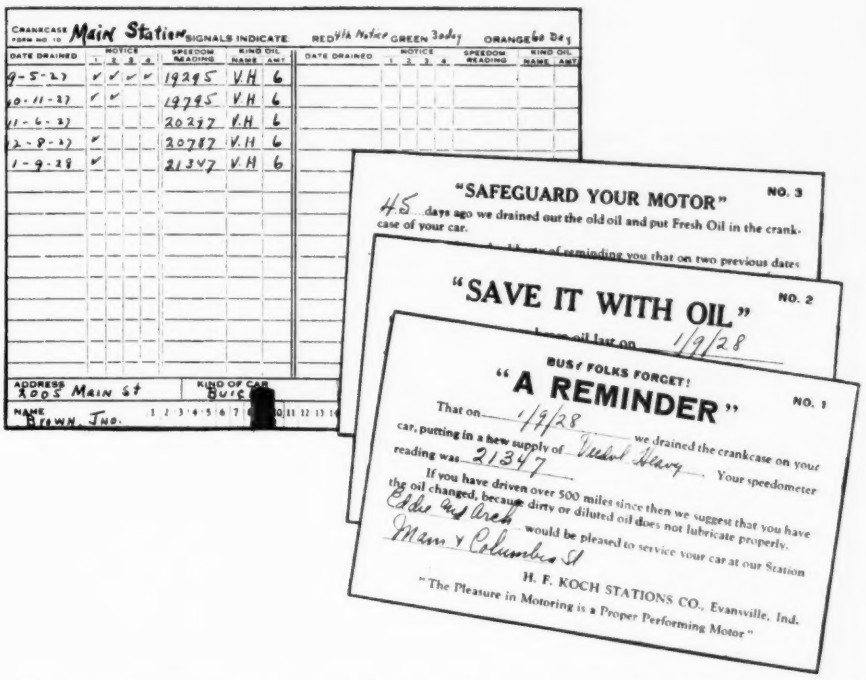
The entry tells its own story. It shows that Mr. Brown drove his car 560 miles between Dec. 8 and Jan. 9; that he responded to the company's first notice and renewed the oil in his crank case with his usual brand and grade. The girl in the office then is all through with Mr. Brown for another 30 days. In a few minutes she is through with all the people whose cars were served that day and whose records reached her desk at noon.

Her forenoon job is just as simple. Let us say for convenience that she comes to work on the morning of Feb. 9 ready to send out reminders to

customers. Opening the file where names and dates show along the bottom edge of each card, she examines them all for signals which indicate Feb. 9.

Presently she finds a green signal on John Brown's card covering the notation has been made since Feb. 9 she knows it has been 35 days since Brown changed his oil. So she sends him the second reminder (Postal card No. 2).

Every time she sends out a reminder she makes a check mark on



CRANKCASE FORM NO. 10 **Main Station** SIGNALS INDICATE RED 4th Notice GREEN Today ORANGE 60 Days

DATE DRAINED	NOTICE 1	2	3	4	SPEEDOM READING	KIND OIL NAME	AMT
9-5-27	✓	✓	✓	✓	19295	V.H	6
10-11-27	✓	✓			19795	V.H	6
11-6-27					20277	V.H	6
12-9-27	✓				20787	V.H	6
1-9-28	✓				21347	V.H	6

ADDRESS 2005 Main St — KIND OF CAR Buick

NAME Brown Jno.

"SAFEGUARD YOUR MOTOR" NO. 3

45 days ago we drained out the old oil and put Fresh Oil in the crankcase of your car.

"SAVE IT WITH OIL" NO. 2

1/9/28

BUSY FOLKS FORGET!

"A REMINDER" NO. 1

That on 1/9/28 we drained the crankcase on your car, putting in a new supply of Veedol Heavy. Your speedometer reading was 21347.

If you have driven over 500 miles since then we suggest that you have the oil changed, because dirty or diluted oil does not lubricate properly.

Elder and Arndt would be pleased to service your car at our Station Main & Columbia St

H. F. KOCH STATIONS CO., Evansville, Ind.

"The Pleasure in Motoring is a Proper Performing Motor"

Above is a reproduction of the "Cardex" card used by the H. F. Koch Stations Co. One for every customer keeps a complete account of his lubrication record. On the right are the three reminders (postal cards) mailed five days apart to late customers

ninth. That shows it has been 30 days since Brown changed oil.

If he were a man who changes oil every 60 days the signal would have been yellow but the system would be the same otherwise.

But, having found a signal, the young lady mails Mr. Brown a reminder (Postal card No. 1) which starts out by saying "Busy Folks Forget."

But for fear he fails to comply she slips the signal on Brown's card five days forward. Then in her regular routine on Feb. 14 she finds Mr. Brown's card again, and if no Mr. Brown's card and moves the signal five days forward. Thus on Feb. 19 she discovers that Brown has neglected his oil for 40 days and she sends out the third reminder (Postal card No. 3) which is the last routine notice.

This time, when she moves the signal on Brown's card forward five days she takes off the green signal and puts on a red one covering Feb. 24. On that date if Mr. Brown has not come back to the station and changed his oil he gets a letter from Mr. Butsch. The letter is substantially as follows:

Mr. John Brown,
2005 Main Street,
Evansville, Ind.,
Dear Mr. Brown:

In going over our records of our service station, we find that your car has not been back for oiling and greasing service.

We have mailed you our usual thirty day, thirty-five day, forty day warning card at the above mentioned address, and we are wondering if our service was up to its usual standard or whether you have any comments of any nature whatsoever to make regarding the work we did for you.

Large fleet owners realize, because of the accurate check on operating cost, that they save considerable money by having their trucks and passenger cars lubricated regularly, which in 90% of the cases is every 500 miles.

We call this to your attention in the belief that you along with the 3000 other local motorists will appreciate our endeavor to help you operate your car economically. If, however our service has not been satisfactory or if you have any comments of any nature to make, we kindly ask that you use the enclosed self-addressed envelope and be frank about your opinions.

If you wish, you may write your comments on the other side of this letter.

Yours truly,

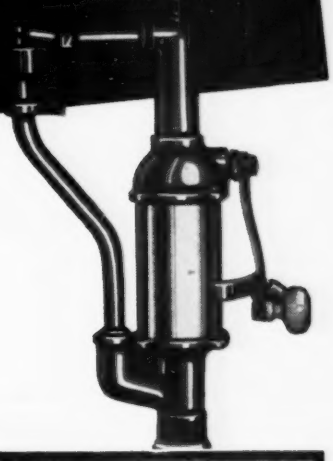
H. F. KOCH STATIONS CO.
Manager.

JHB:FG

"Save it with Oil"

"There is a Koch station in every neighborhood"

The Pump with the CUP LEATHER PISTON and SQUARE RACK!



Model 506 "Quality Built" Bennett Barrel Pump

THIS Bennett barrel pump is definitely a precision device. Non-visible type, having one-piece base especially designed for fitting 1½" and 2" drum openings; telescoping intake pipe fitting 15 to 60 gallon capacity drums; self-closing return drain arm especially designed and carefully made to eliminate leaking at the point of turning; positive heavy cast lock link; steel cylinder with special treated cup leather pistons.

Other Bennett models are made with visible or non-visible cylinders, with or without self-closing return drain arm.

Model 3 Triangle Truck and Model 8 Barrel Pump

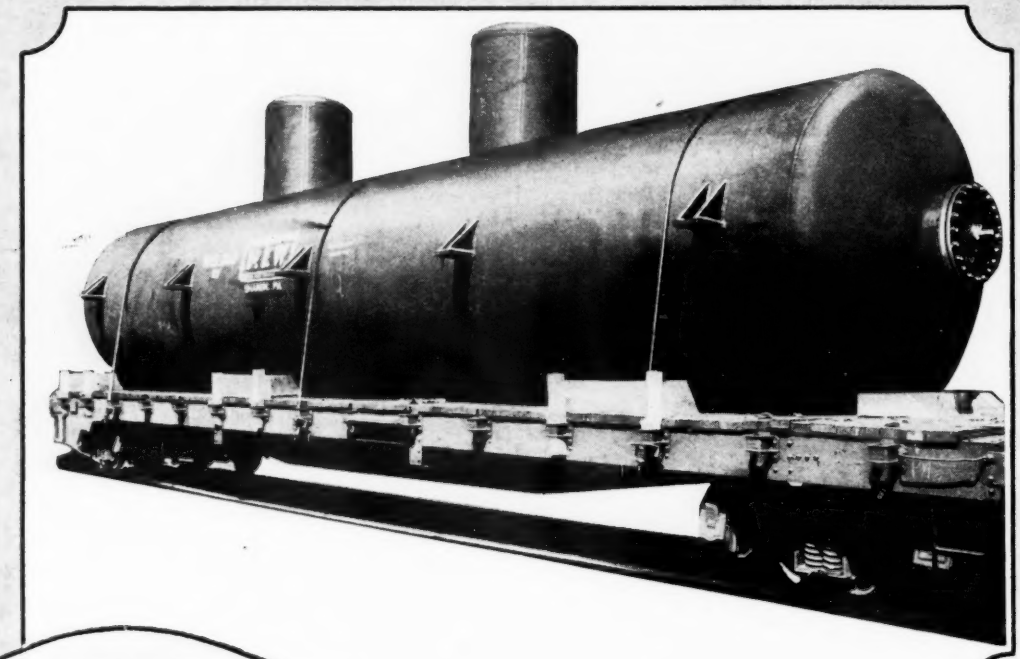
Front swivel of truck has 2 wheels 3¾" diameter with 1½" face; 2 rear wheels 8½" diameter with 1½" face; barrel clamps for locking 30 to 60 gallon drums on truck. Pump is Model 8 visible type with non-drip nozzle and covered drain pan having metal screen.

Write for

Complete bulletins on Bennett visible and non-visible barrel pumps, with or without self-closing return drain arms; and for truck bulletin, to Muskegon. Bennett Export Corporation, 32 Broadway, New York City.

-Symbol of Quality-

Bennett Pumps Corporation
QUALITY BUILT
BENNETT
Dispensing Equipment
FOR OIL STATIONS
Muskegon, Michigan.



P.I.W.
STEEL PLATE CONSTRUCTION

P. I. W. Products Include

"Fluid Fusion" Welded Stills.
"Fluid Fusion" Welded Steel Pipe.
"Fluid Fusion" Welded Boxes, Bins and Kettles.
Tanks up to 120,000 barrels capacity.
"Pennsylvania" Tank Cars.
Process Industry Equipment.
Oil Refining Equipment.
Elevated Steel Tanks.
Penstocks.
Standpipes.
Annealing Boxes.
Galvanizing Kettles.
Smokestacks.
Agitators.
Blast Furnace Equipment.
General Light and Heavy Steel Plate Construction.
P. I. W. Steel Shipping Barrels.

—for the advance of Petroleum Refining.

THE progress of petroleum refining has always depended on the ability of the still and equipment manufacturers to adapt their fabricating methods to the production of equipment to meet ever increasing pressure and temperature demands. But the distinct restrictions imposed by riveting and ordinary welding fabrication tied the manufacturers hands and seriously retarded refining advance.

Now these restrictions are removed and P. I. W. offers Fluid-Fusion welded cracking stills and equipment in wall thickness up to 6 inches and in dimensions to tax transportation limits.

The combination of Fluid-Fusion, automatic machine welding and the great P. I. W. plate fabricating facilities results in the production of stills and cracking equipment to resist pressure, temperature, and corrosion to a degree inconceivable with other types of equipment.

BRANCH PLANT — BEAUMONT, TEXAS.

THE
PETROLEUM IRON WORKS COMPANY

NEW YORK
CHICAGO
SHARON, PA.
HOUSTON
TULSA

With this simple system, one girl clerk can examine the whole card file in 15 or 20 minutes, taking out the cards that require attention on that day. She need not be a stenographer if she can write a legible hand. Directing and mailing a few dozen postal cards is another small job.

Letters rarely have to be sent out. Nearly any customer will respond to warnings to change his oil before he gets the fourth one. Even if one or two letters a day go out, it would not be a burden of additional work to the regular office stenographer. Mr. Butsch had the letters multigraphed in quantity on the company's stationery so the customer's name and address could be filled in with the date when it was prepared for his signature. But the number required might easily be prepared when needed, each one an original.

Of course there are some customers who do not respond even to the letters. In such instances the customer's card is removed from the active file and placed in another file which constitutes a list for direct mail advertising. If any customer becomes active again after leaving the company for a while, his card is restored to its position in the file.

ACKNOWLEDGEMENT

For the pictures and charts that illustrate this article, NATIONAL PETROLEUM NEWS is indebted to the courtesy of "Contact", published by Tide Water in New York City.—Editor.

The H. F. Koch Stations Co. offers a perfect opportunity to illustrate the workings of this system. The company's operations are not complicated. Its six stations are all in Evansville and are well distributed over the city. They serve the town adequately but they make no effort to serve the surrounding country. The company operates no rural trucks.

On the theory that one girl keeps up with Mr. Butsch's 1500 customers, working two hours a day, it would require a list of 6000 names to keep one clerk busy. However, it can be seen that the success of this system depends upon the accuracy of the central office clerk. The attendant at the station has no complicated forms to fill out. He simply sends in his daily sales record together with a cluster of Forms 20, made out by customers, and the clerk does the rest.

Mr. Butsch says that his gallonage has increased perceptibly in the year the system has been working. The company can claim permanent customers as a direct result of the service.

TRADE MARK REG. DAVIS U.S.A. FOREIGN COUNTRIES

"Master" OIL FOUNTAIN

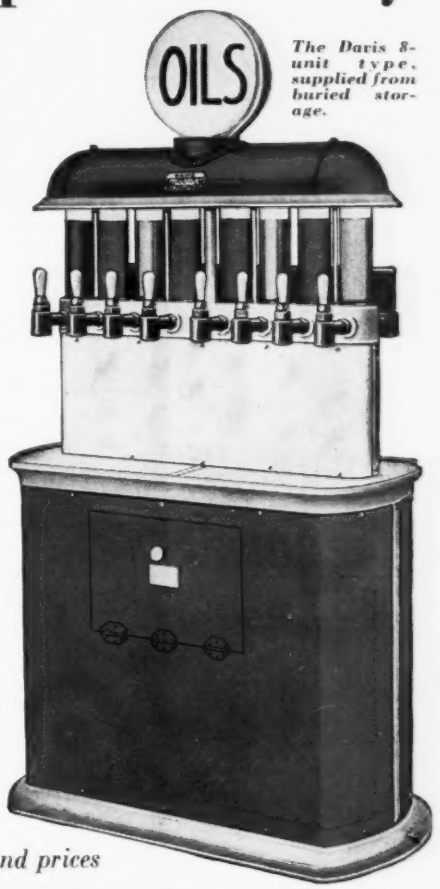
They Don't Go By—

They Stop and Buy

When your station glows with this Gleaming Magnet for More Sales!

Rapid profits in this silent master salesman. Its exclusive features irresistibly attract the passing motorist.

Illuminates oil from inside of glass tubes. Speeds servicing, oil being drawn from either side in full view. Keeps itself and station clean by its perforated table and drain flutes. Four and eight-unit types supplied from buried storage by air pressure.



The Davis 8-unit type, supplied from buried storage.

The New DAVIS SELF-CONTAINER

Everything built in. Completely installed in 5 to 6 hours. No tearing up of concrete. Two 24-gallon and two 12-gallon tanks and two heaters in base of fountain.

Write for full particulars and prices

The Davis & Son Manufacturing Co.

1604 Broadway, Denver, Colo.

Sales Forces and Truck Fleets Use

ALLISON COUPON BOOKS

Accurate—Compact—Convenient

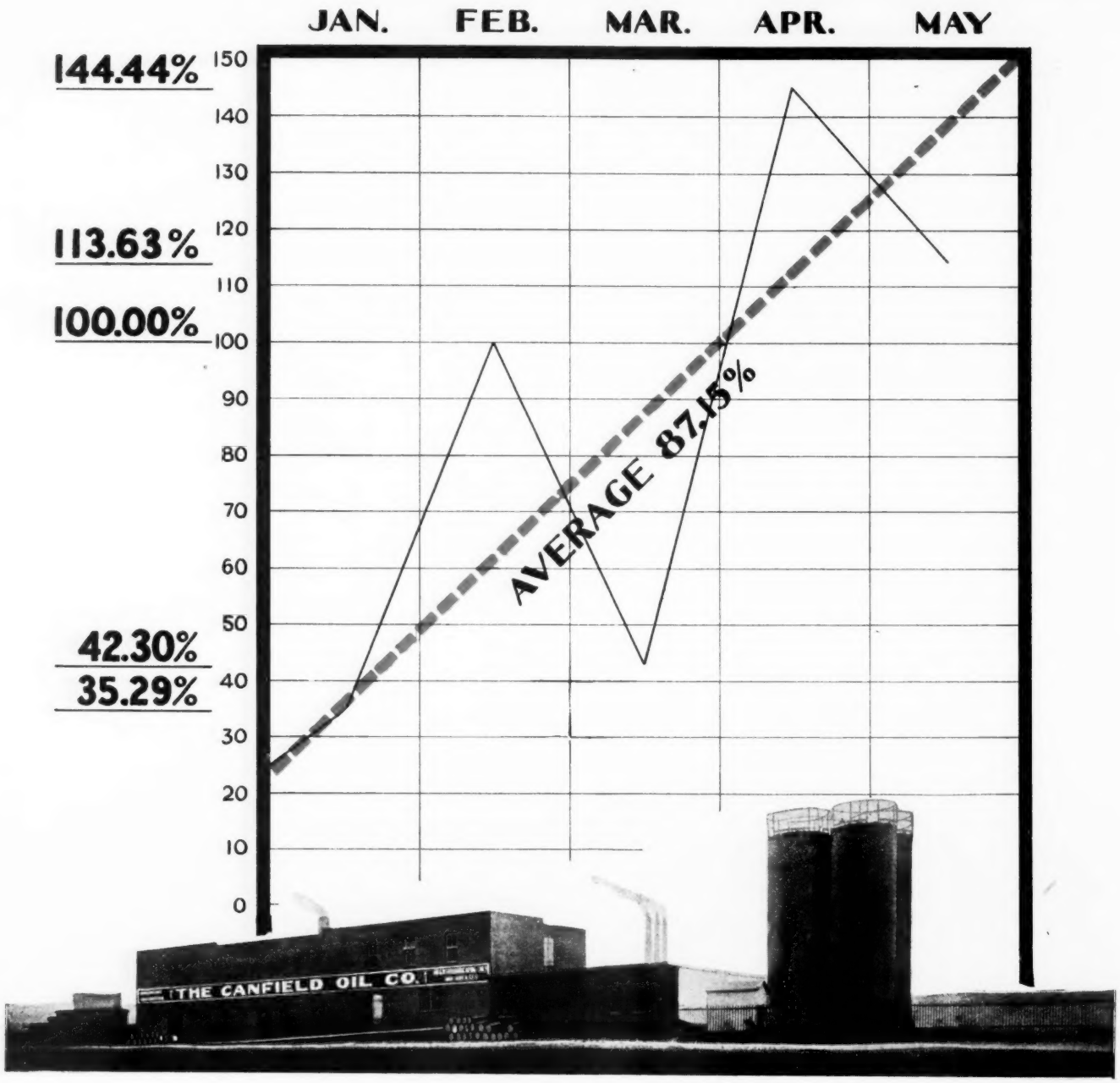
They realize the great convenience of coupon payments and they choose filling stations that can give them that service. Allison Coupon Books are always accurate—furnished in stock or special designs. *Send for samples and prices.*

Allison Coupon Company

Indianapolis, Indiana

Coupon Book Specialists Since 1888

87% increase



Canfield's Jersey City Plant carries a full stock of Canfield Products, especially of Premium 100% Pure Pennsylvania Motor Oils and Canfield Filtered Motor Oils and Neutrals. Complete facilities are also maintained here for compounding to Jobbers' specifications.

Jersey City Plant

in business per month over 1927

DURING the first five months of 1928, the business done by Canfield's Jersey City Plant increased on an average of 87.15% per month over the corresponding month of 1927. Figures showed May, 1928 running ahead of May, 1927. And May, 1927 had been the biggest month in the history of our Jersey City Plant!

As a result of this growth, we've had to do a lot of hustling and planning this year to give the kind of service out of our Jersey City Plant that we like to give. And we pause here to thank an increasing group of Jobbers and Marketers who have made this expansion possible and necessary.

Of late, Canfield's Jersey City Plant has seen a continuous procession of improvements.

New Automatic scales now drive away the last chance for mistakes in weighing. New steam pumps and larger unloading pipes speed up the emptying of tanks. We have added 40% to tankage facilities. Our shipping platforms now load twice as many trucks simultaneously. And in still other ways we have taken measures to anticipate the constant growth of Canfield Jobbers' volume in this country and abroad.

Canfield Products are favorably known in Brazil

For Canfield's Jersey City Plant not only serves the Greater New York District and the Atlantic Seaboard, but takes care, also, of the Pacific Coast via the Panama Canal and Canfield's export trade in 50 foreign countries and Canada.

All this is typical of the progress Canfield Jobbers are registering. It illustrates, too, the way we are constantly improving and enlarging our facilities to meet the requirements of our Marketer friends.

THE CANFIELD OIL COMPANY

Serving Jobbers Since 1886 *General Offices:* Cleveland, Ohio

Refineries: Cleveland, Ohio; Coraopolis, Pa. *Compounding and Grease Plant:* Cleveland

Greater New York Plant: 285 Tonnelle Ave., Jersey City

Canfield QUALITY & EXPERIENCE SINCE 1886 Oil Co.

PS Return this list, checking the items in which you are interested. We'll respond promptly with prices and full particulars.

Tank Cars	Drums	
☐	☐	Premium Motor Oils (100% Penna.)
☐	☐	Premium Tractor Oils (100% Penna.)
☐	☐	Canfield Filtered Motor Oils
☐	☐	Mid-Continent Motor Oils
☐	☐	Mid-Continent Tractor Oils
☐	☐	Zero Oils
☐	☐	Black Oils
☐	☐	Car Oils
☐	☐	Castor Machinery Oils
☐	☐	Soluble Oils
☐	☐	Cutting Oils
☐	☐	Viscous Neutrals
☐	☐	Non-Viscous Neutrals
☐	☐	Red Oils
☐	☐	Filtered Cylinder Stocks
☐	☐	Steam Refined Cylinder Stocks
	☐	Belt Oil

Drums	Barrels	Small Packages	
☐	☐	☐	CANFIELD PRESS-SURE LUBRICANT
☐	☐	☐	ZERO GEAR COMPOUND
☐	☐	☐	P. O. C. GEAR COMPOUND
☐	☐	☐	Cup Greases
☐	☐	☐	Crank Pin Grease
☐	☐	☐	Graphite Grease
☐	☐	☐	Fibre and Sponge Grease
☐	☐	☐	Mine Car Greases
☐	☐	☐	Axle Grease
☐	☐	☐	Gear Shield
	☐	☐	Auto Soap
	☐	☐	Petrolatums
		☐	Belt Stick

Name .....

Company .....

Address .....

City ..... State .....

NPN 7-11-2

Canfield

Special Muleskin Folio

Your Name in Gold FREE

Complete Net $7.50

362K—Special made folio from heavy double weight muleskin in handsome shark grain. Has three pockets, heavy leather straps and handle, gold lock, bottom reinforced with steel studs. Inner case contains six 4-oz. bottles, partitioned separately, lined with red velvet. Metal capped corks furnished. Case also contains five grease jars.

Other styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage

614 Delaware, Kansas City, Mo.

You Sell 50 Gallons *Instead of* "5"

Turn your "drive in" customers into bulk buyers and get ALL their business. Double and treble your volume of gas and oil sales. Others are doing it. So can you with this new

Kwart Kwick Home Oil Pump

This handy pump fits any drum or barrel. Ideal for home garages, working equally well with oil, gas or other liquids. Nominal in cost—long wearing. Built of finest brass, steel and cast iron. Big discounts to oil companies for quantities.

Write for details of special sales plan now succeeding for many companies Mail the coupon below.

Kwart Kwick Dep't.

VIKING PUMP COMPANY

Cedar Falls, Ia.

MAIL THIS

Viking Pump Co., Dep't. B., Cedar Falls, Ia.
Please send details about your Kwart Kwick Pump and your special sales plan.

Name.....

Town.....State.....

California Engineer Describes Way to Get Oil, Water Data

LOS ANGELES, July 7

A STATUTE of the California mining laws requires that every oil producer in the state report at regular intervals the amount of oil each well he operates is making, as well as the amount of water, and the gravity of the oil. H. A. Godde, in his paper in the current issue of Summary of Operations of the California Oil Fields, issued by the state oil and gas supervisor tells of some ways in which the operators may gather this information inexpensively as well as accurately.

In recording production, the figure given should include all oil produced by the well, no matter what its disposition. The figures should include all water coming from the well, as the variations in the amounts of water produced often indicate its source.

Records and reports of gravity are of great importance, says Mr. Godde. In localities where there are several producing sands the gravity tells to a certain extent from which sand the production is coming. In figuring the gravity, the temperature of the sample should be recorded. The American Petroleum Institute gravity scale is preferable.

Mr. Goode says that in determining the gravity of oil it is essential that the sample be thoroughly mixed. It should be placed in a cylinder of sufficient diameter to offer no hindrance to the free movement of the hydrometer. The latter should be placed in the oil in such a manner that it sinks of its own weight, rather than be pushed down and allowed to float back up. It should remain in the oil for about five minutes, after which any foam on top of the sample may be dispersed by adding a few drops of denatured alcohol, or gasoline. The temperature, says Mr. Godde, should be taken just after the gravity has been read.

It is generally conceded, writes Mr. Godde, that ultimate recovery of oil is increased by holding in the sand the gas, which is not needed in lifting the oil. It is therefore necessary, he says, that gas production and gas pressures be recorded in order to determine the oil-gas ratios. This is most important in new fields, where pressures have not as yet been dissipated.

The depth of the working barrel, which, Mr. Godde says, determines the maximum production of the well, is governed largely by fluid level, rather than by stratigraphy. Experiments should be made, he says, so that the operator may have exact knowledge of the results obtained by placing the tubing at various depths in the well.

Mr. Godde maintains that the fluid should not be pumped too low, as this leaves the face of the sand exposed, resulting in frequent caving of the sand, requiring cleaning out, with its consequent loss of time and production.

Besides causing the sand to cave, placing of the working barrel too low may result in skimming the oil from the water, thus permitting the water to work into the sand, where it can do considerable damage. The fact that the water is coming from the bottom of the hole may be determined by running a bailer or lowering the tubing.

The relationship between fluid level, depth of working barrel and production is very important. In order to determine the efficiency of the pumping unit the number of days the well produced during the period being reported on should be recorded. Reasons for being shut down, such as engine trouble, broken rods and sand cavings should also be set down.

A centrifuge test, taken to determine the amount of emulsion in suspension in the oil, should be run. Mr. Godde recommends the following method. Measure 75 cubic centimeters of solvent, consisting of 75 per cent gasoline (preferably light), and 25 per cent carbon bisulfide into each of the centrifuge tubes to be used and add to each 25 centimeters of the oil to be tested.

The contents of each tube should be thoroughly mixed and the tubes immersed to the 100 c.c. mark for 10 minutes in a water bath at 120 degrees F. They should then be placed in the holders and whirled for 10 minutes, and the combined volume of water and impurities recorded. The operation should be repeated until the combined volume of water and impurities remains constant for at least two consecutive readings. The percentages of water and impurities for the sample is the sum of the final readings of the two tubes multiplied by two.

To determine accurately the production, amount of water, etc., that a well is making it is necessary to have individual well gages. If the size of the production does not warrant the expense of a separate tank, a portable tank, mounted on a sled, can be taken from well to well, and set up so that this information can be obtained on light wells at a very low cost.

Where you and industry are identical—

Every successful business is constantly on the lookout to improve its machinery and methods.

You, as an individual, in order to progress must devote a reasonable part of your time to ***improving your mind.***

Good books on various phases of the oil industry will improve your mind, and pay you big dividends.

NATURAL GAS

By L. C. Lichty

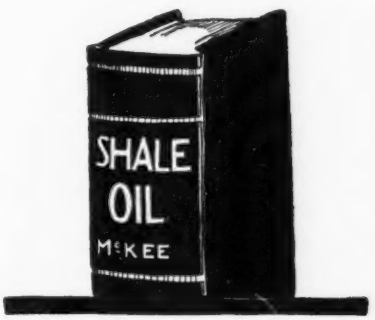
Few books combine the calculations in measurement, compression and transmission of natural gas with practical operating data, as does NATURAL GAS by L. C. Lichty, University of Oklahoma.

Compression in single and double stages; effect of the constituents of natural gas on its deviation from gas laws; compressor characteristics, power curves and other graphs afford the practical man *quick use* of the data in this book.

Tests for gasoline content; design and layout of plants; pipe line construction and flows; storage capacities; machinery used in compression and transmission of natural gas—all described in detail.

523 pages—311 photographs

Price $7.50



If you are interested in the great problem of supplying the world with fuel—get a copy of SHALE OIL.

It is written by men who have devoted years to the investigation of oil shale resources and their uses. R. H. McKee, professor of chemical engineering, Columbia Univ., is chief editor, and other oil shale specialists have contributed chapters as follows:

Origin of Oil Shales—Geology and distribution—Kerogen, the oil yielding material—Fundamental factors in analyzing and evaluating—Refining of shale oils—Nitrogen constituents—Basic factors of industry—Distillation plants—Patents. 325 pages—profusely illustrated, $6.

RECOVERY of GASOLINE from NATURAL GAS

A glance over a few of the chapter headings indicates how thoroughly the author, George A. Burrell, goes into the subject of "Recovery of Gasoline from Natural Gas" in his new book:

Occurrence of gasoline in natural gas—Applying "vacuum" to wells—Gas leases—Chemistry and analysis of natural gas—Testing for gasoline content—Measuring—Gas carrying capacity of pipe lines—Compression method—Absorption process—Charcoal process—Extraction from Residue gas—Blending — Fractionating columns — Depletion—Removal of Hydrogen-Sulfide — Sulfur — Relation between vapor tension and distillation loss—Shipping losses—Gasoline loading apparatus — Insulating gasoline storage tanks — Accidents in transporting — Hazards in gasoline plants — Gas engines and compressors — Horse power required to compress — Steam boilers — Steam engine — Pumps used in gasoline recovery — Water cooling systems — Pipe for natural gas plants — Tanks — Regulators, relief valves, traps, thermostats, meters — Construction and operating costs of plants — Fuel economy — Depletion of properties — Other motor fuels than gasoline— Testing gasoline — etc.

590 pages, 210 illustrations, price $10

— — — — — — — — — — — — *Cut out and mail* — — — — — — — — — — — —

National Petroleum News,
Room 707—1213 W. 3rd St., Cleveland, Ohio.

I want the books checked below. Enclosed is check or money order for $----------

NAME----------

Address----------

- ☐ Natural Gas $7.50
- ☐ Shale Oil $6
- ☐ Recovery of Gasoline from Natural Gas $10

INDEX TO ARTICLES

Selected Bibliography on Petroleum Technology

Editor's Note—The brief abstracts of current literature printed below are so arranged that they may be cut apart and mounted on 3" x 5" library indexing cards. The indexing numbers assigned bring the cards into logical sequence in the files. The "Decimal Index of Petroleum Technology" gives the key to the articles. This book is published exclusively by NATIONAL PETROLEUM NEWS as a service to its readers. Price $1.00. Abstracts started April 4, 1928.

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Have you ever racked your brain for hours—perhaps days—to recall where you saw some particular article on "shell stills" or perhaps "diamond drilling" or a certain "merchandising plan"?

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J. C. Chatfield **773.1**

"Three Pressures May Be Used at Once in Wichita Absorption Plant"

National Petroleum News, March 28, 1928, p. 58-60.

A descriptive article on the design of a high pressure oil absorption plant built by the Empire Oil & Refining Co. at Wichita, Kans. The plant is so designed that three pressures may be utilized simultaneously in the absorber system. A device for gauging underground storage tanks without releasing pressure is described.

R. D. Turner **680**

"Irregularities in Density, Rate of Flow, Problems of Wet Gas Measurement."

National Petroleum News, May 2, 1928, p. 27-28

Gives results of study of gas measurement problems as carried on by the Skelly Oil Co., the paper being presented before the Southwestern Gas Meter Course, University of Oklahoma. The author brings out that, in the measurement of wet gas, the three factors contributing most of the difficulties are, in the order of their importance, irregularity of flow, variation in the density of the gas and measurement at extremely low pressures.

Gerstenberger, D. F. **747.**

"Laboratory Staff Should Keep Finger on Pulse of Refinery"

National Petroleum News, May 16, 1928, pp. 69-75.

Author describes function of refinery laboratory in keeping products up to proper quality and suggests layout and organization for good refinery laboratory and staff.

Truesdell, Paul **721.3**

"Good Products at Low Cost from Any Crude Available" Article 3

This is a description of the cracking plant and methods of operating it at the Marland refinery, Ponca City, Okla.

J. C. Chatfield **778.2**

"Vapor Phase Blending at Gasoline Plant Produces Finished Motor Fuel"

National Petroleum News, March 14, 1928, p. 39.

This article describes a high pressure method of blending natural gasoline in the vapor phase with cracked naphtha to produce a finished motor fuel which is being marketed as a volatile, anti-knock product. A Flow chart of the apparatus developed by the L. H. Wentz interests at Dillworth, Okla., is given.

Renick, B. Coleman **368.**

"Recently Discovered Salt Domes in East Texas"

Bulletin of American Association of Petroleum Geologists, May, 1928, Vol. 12, No. 5, pp. 527-547.

As a result of geological and seismograph work in the interior of east Texas, which this paper reviews, nine salt domes were discovered in 1927. Their finding followed the drilling of a producing oil well on the Boggy Creek dome, which straddles the Anderson-Cherokee county line. Although that well proved of little commercial importance, because of going to water quickly, the fact that it made oil opened an immense territory for future producing possibilities. The newly discovered domes and six older ones of the region are briefly described. Stratigraphic position and lithologic character of the prospective producing horizons also are discussed.

Truesdell, Paul **726.1**

"Cutting Costs in Steam Raising, Disillation and Filtering, Article 3"

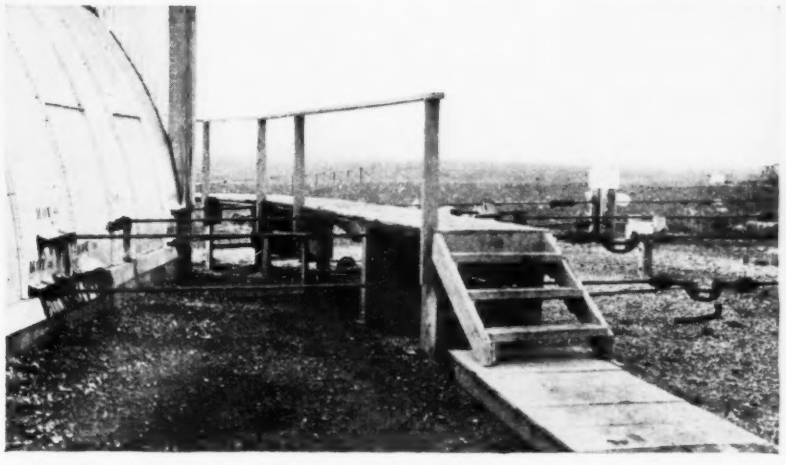
National Petroleum News, May 16, 1928, pp. 49-52-53, 54.

New percloating filter plant at Seneca Oil Works, Warren, Pa., combined with Herreshoff clay roasting furnace, automatic clay handling equipment, etc. Two earlier articles in series dealt with new boiler plant and new batch still at the same refinery. (May 2, 1928, p. 17 and May 9, 1928, p. 49)

Power Pumping Reduces Costs On Kansas Lease

By L. E. Smith

N. P. N. STAFF WRITER



Upper left—Utilizing old material. Length of pipe swaged top and bottom, fitted on standard base and used as hold-up for rod lines. Center—The pumper doesn't have to stumble over rod lines at this Empire plant, as steps and walkway are provided. Upper right—Note oil cups on top of hold down for rods

AUGUSTA, Kans., July 6

RECENT installation of a band wheel pumping power in the Augusta field by the Empire Gas & Fuel Co., in addition to performing satisfactorily on 25 wells, has brought about considerable reduction in operating costs.

The power pumps 20 wells of average depth of 2500 feet and five which average 2000 feet depth. As pumping time is arranged, there are usually 14 wells "on" the power at one time.

The installation consists of a 24-foot Reid band wheel power and a 65 horsepower Reid engine. Prior to putting in this power, all wells were pumped on the beam, each having a gas engine.

One of the principal items in the cost reduction was labor. Since the power was started in operation the property has been run with three fewer pumpers and the same number of roustabouts. Company officials say the number of rod and tubing pulling jobs has been cut about 50 per cent. The more steady, even pull of the surface rods from the power as compared to the motion of the beam, is responsible for lessened wear and breakage of rods.

Production is practically the same by power pumping as by beam pumping from the 25 wells, taking into due account the normal decline.

As on several other Kansas properties, the Empire has made use of old steel tank staves for the building which houses the power. In this district, where corrosion of equipment has been pronounced, tanks frequently are retired from service. The Empire uses the plates from 5000-barrel tanks, erecting therefrom a building having no square walls except at the ends. The form is that of a half tank resting with the rounded surface upward. It offers less resistance to wind than the usual square sided building and has no fire hazard, as do wood power buildings.

While a substantial labor cost is involved in cleaning up the plates, erecting and painting them, the cost of a building is much less than that of a new one, as nothing can be charged to material, the old tanks having no salvage value otherwise. Little can be realized on them as junk.

E. G. Allen, left, is central division general superintendent of production at Dallas for the Roxana Petroleum Corp. U. de B. Daly, right, is attached to the Roxana executive staff at St. Louis

Our Industry—A Page of Facts and Personalities

By Paul Wagner

National Petroleum News

All employes of the California Petroleum Corp. and its subsidiaries who had been continuously in its employ for two years prior to Jan. 1, 1928, will be allotted stock under the benefit plan of The Texas Corp., which now controls the western companies.

R. C. Holmes, president of The Texas Corp., in making the announcement, called attention to the fact that allotments of stock totaling 678,429 shares have been made under this and previous plans of The Texas Co., since 1915, at prices which have resulted in an advantage to employes of more than $11,000,000.

In the case of the California Petroleum Corp., and its subsidiaries, all employes who, at date of death or commencement of disability, have been one year or longer continuously employed, are eligible to participate in death and disability benefits.

The total of death and disability benefits due or paid to Jan. 1, 1928 was given by President Holmes as $1,167,271.86.

* * *

T. R. Waterbury, formerly manager of the Holland branch of the Continental Petroleum Co., is now managing director of The Texas Oil Co., Ltd., at London. G. S. Mayo, formerly sales department assistant manager of The Texas Co., in the Minneapolis district, is now general manager of The Texas Co. (South Africa) Ltd., at Capetown. H. MacRobert, formerly in the New York district sales department, is the new assistant manager of The Texas Co. (Porto Rico) Inc., at San Juan.

* * *

Jack Cave, Gulf Coastal district scout of Sinclair Oil & Gas Co., Houston, is recovering from injuries sustained in an automobile accident recently at Brenham, Texas.

* * *

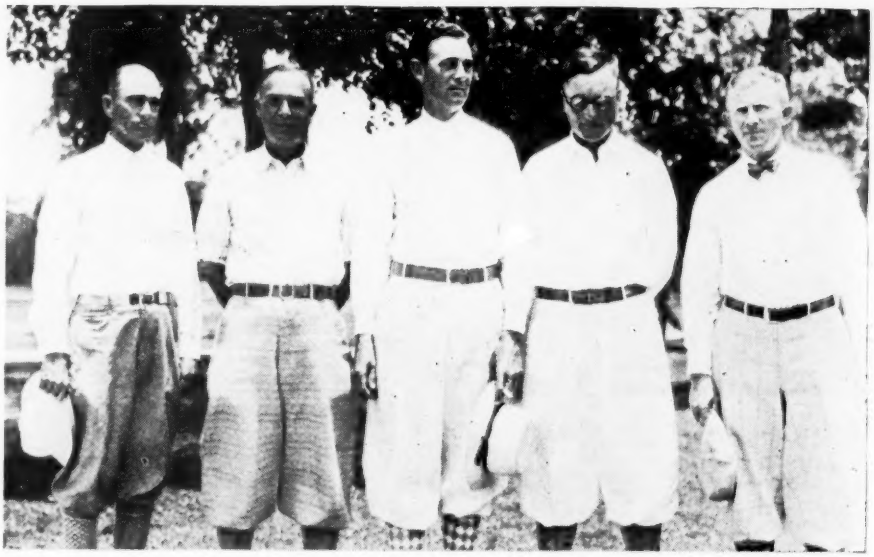
George Morgan, formerly manager of the San Antonio offices of the Dixie Oil Co., Inc., subsidiary of Standard Oil Co. of Indiana, has been transferred to Shreveport since his election to a vice presidency of the Dixie.

* * *

L. P. Teas, geologist of the Humble Oil & Refining Co., for several years stationed at Shreveport, is now at Houston headquarters.

* * *

Wilson Keys is in charge of a geological office opened at Roswell, New Mexico, by the Simms Oil Co., Dallas.



Five inveterate golfers. From left to right, R. O. Dulaney, Harry Gwinnup, W. A. Moncrief, J. L. (Jimmy) Taylor, and John B. Greer

It is truly an interstate group that makes up the personnel in the accompanying snapshot. From left to right are shown: R. O. Dulaney, president of the Fort Ring Oil & Gas Co., and one of the principal owners of the Petroleum building in Fort Worth; Harry Gwinnup, formerly of Tulsa but more recently of Fort Worth, who operates in Brown and Callahan counties, Texas; W. A. Moncrief, formerly vice president, Marland Production Co., Fort Worth, who is also chairman of the Pecos County Prorating Committee; J. L. (Jimmy) Taylor, president of the Taylor-Link Oil Co., who calls Houston home but spends most of his time in and out of San Angelo; John B. Greer, one of the principals in the contracting and producing firm incorporated at Shreveport as the Clark & Greer Drilling Co.

All are inveterate golfers, as may be judged from their attire.

* * *

E. J. McCormick, formerly of Philadelphia, has been promoted to be special representative in charge of the new office of The Texas Co. of Canada, Ltd., at Toronto, Ontario.

* * *

A. J. Martinson, formerly with the United States Bureau of Mines, is now in charge of first aid work in the Safety division of the Union Oil Co. of California. Mr. Martinson has had charge of mine rescue cars 10, 1 and 8 at various times, most recently in the Duluth, Minn., district.

Douglas R. Semmes, long chief geologist of the Mexican Eagle Oil Co., Ltd., at Tampico, and more recently a consultant with offices at Cisco, Texas, has joined the newly formed Compania Mexicana de Petroleo "El Charro," S. A. He will be assistant general manager of the new company.

* * *

Charles H. Homer is now in charge of the Rycade Oil Corp's. field work in St. Martin's parish, La., where Atchafalaya river development is under way. He was formerly drilling superintendent of the Rio Bravo Oil Co., Southern Pacific subsidiary.

* * *

J. Basil Preston is manager of the Midland, Texas, offices recently opened by the J. F. Marion Oil Co., of Dallas.

* * *

Ed. F. Woodward, Houston oil operator, has set another mark for trapshooters. Competing in the grand international trapshooting tournament at Tecumseh, Ontario, he ran a three-day string of shattered "birds" to 506 before he missed a straightaway target on his 157th shot of the day.

* * *

Pres. L. W. Kesler of Wichita is in charge of plans for the second annual field conference of the Kansas Geological Society, Aug. 26-Sept. 2, inclusive, which will start from Springfield, Mo.

THE PATENT SITUATION ON SAND TESTING TOOL

It seems certain that the United States Patent Office will in the near future issue a patent on an application owned by Halliburton containing the following claim and several similar claims:

> "Apparatus for testing a well comprising a string of pipe to be lowered into the well, a packer carried by the pipe and means at the lower end of the pipe to receive a sample from the well including an inlet and a valve for controlling the inlet, the valve being positively controlled by movement of the pipe to open and close the inlet while the packer is seated."

This advertisement is published in the interest of those operators contemplating the purchase of a device that will come within the above claim.

ERLE P. HALLIBURTON COMPANY

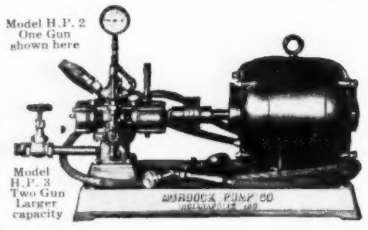
Duncan, Oklahoma

Today's Trend is Toward
Complete Service

Install a

MURDOCK
CAR WASHER

Stimulate New Business
Make More Money



Revolutionary in Design
Built like a Fire Engine Pump

It's the sweetest operating car washer ever produced. It works fast and thorough, makes you more profit and does a real job that brings repeats.

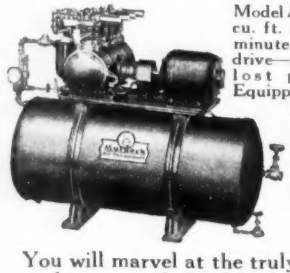
Its efficiency is as dependable as the finest fire engine pumps, after which it is patterned.

This washer is easily and cheaply installed and very economical to operate.

MURDOCK
AIR COMPRESSOR

Dependable—Efficient—
Economical

Compact—Neat in Design



Model A.C.14, 14 cu. ft. of air per minute. Direct drive—no belt, no lost power. Equipped with improved intake mufflers, extra large oil and water trap.

You will marvel at the truly great performance of the Murdock Air Compressor. Its practical simplicity—its many improved features have gained it unusual popularity.

Distributors—we have an attractive, exclusive offer.

MURDOCK
PUMP CO.
INDIANAPOLIS U. S. A.

Gulf is Low Bidder on Fuel For U. S. Merchant Ships

WASHINGTON, July 7

GULF REFINING CO. quoted the lowest figures for supplying fuel oil to the Merchant Fleet Corp. of the U. S. Shipping Board in bids opened June 27. Definite bids had been asked on the fleet corporation's requirements for 1929 and tentative bids for the 1930 and 1931 requirements.

The bids for 1930 and 1931 are options to be exercised at will by the shipping board corporation but acceptance of them does not bind the board to pay money in excess of the appropriation that may be made by congress for the purpose.

The Gulf offered to supply fuel at all the principal and many of the less important ports on the Atlantic and Gulf coasts. Its offers were so widespread in three proposed plans that as soon as they were opened they were taken as the foundation for the discussion of the other tenders. Other bidders were The Texas Co., Tide Water Oil Co., Standard of New Jersey, Cities Service Co., Pure Oil Co., Beacon Oil Co. and Pan American Petroleum & Transport Co.

The bids were submitted under a condition as to the period of a possible contract which read:

"Period of contract: The contract shall be for the period of one year commencing Jan. 1, 1929, and shall be continued thereafter for two periods of one year each, provided, however, that nothing therein contained shall bind the buyer (Merchant Fleet Corp.) in any fiscal year for the future payment of money in excess of appropriations made by congress for the purpose of operating vessels under the control of the buyer."

Requirements are estimated at 875,000 barrels per month, of which yearly total of 10,500,000 barrels the buyer estimates 1,000,000 barrels will be taken from the seller in tank steamer cargo lots for supplying shipping board bunkering stations on the Atlantic and Gulf coasts and Panama.

The corporation desired bids for supplying its needs at any or all the ports shown in the list but the bidders were free, and exercised that freedom, to specify the maximum quantities they would hold themselves to deliver.

The buyer also asked the option of taking not more than three cargoes in any one month, 180,000 barrels, to supply its bunkering stations, the requirements of which were estimated at 1,000,000 barrels per year.

Bids were desired on the basis of the lowest market price at time of delivery, subject to a stated maximum price. The first impression on the part of some who listened to the reading of the bids was that the bids were on that basis but they were not. The Gulf put in bids at firm or flat prices and also on the basis desired by the buyer. Several bidders made variations in their offers which it was thought at the time the bids were opened would require a week or 10 days consideration to determine which were the most advantageous for a particular port or for a particular delivery at one or more ports.

The forms of delivery specified in the request for bids were f.o.b. buyer's vessels terminal loading station in bunk lots; or, f.o.b. buyer's vessels from seller's barges at wharves, piers or an anchor within the harbor limits in bunker lots as desired; or, f.o.b. buyer's tank steamers taken from seller's terminal loading stations in cargo lots and in bunker lots for tank steamers loading cargoes, as required.

The Gulf offered to supply not more than 315,000 barrels in any one month at New York and less at Tampa and Philadelphia terminals at a maximum of $1.05; $1.15 at Chester and Savannah; $1.10 at Jacksonville; 90 cents at New Orleans in 1929 and 95 for two or for three years in quantities not exceeding 185,000 barrels per month. At Port Arthur it offered a maximum bid of 85 for 1929 to supply not more than 44,000 barrels per month or 90 cents for the three-year period. Its offer at Galveston was to supply not more than 210,000 barrels at 90 cents for 1929 or for 1929 and 1930 or 90 cents for the three-year period.

Those maximum bids of the Gulf, however, were thrown into the shade by flat bids to supply fuel oil at the New York terminal, in 1929, at 90 cents per barrel, or at 93 cents for a two or three-year period. The same offer was made as to Philadelphia. Prices at Chester were $1.04, $1.09 and $1.14; Savannah the same; Jacksonville, $1.01, $1.06 and $1.09; Galveston, 88 cents in 1929; 89 cents for two years or 90 cents for three years.

The Tidewater bid to supply 300,000 barrels at New York at a maximum price of $1.35 or the regular price on day of delivery in any or all the years covered by the prospective contracts.

Standard of New Jersey offered not exceeding 175,000 barrels, shipside, New Orleans at a maximum of 94 cents.

The Texas Co. bid for 1929 a maximum of $1 at Charleston, Jacksonville and Tampa, and 85 cents at Port Arthur, in quantities ranging from 15,000 to 40,000 barrels per month, the last mentioned figure being for Port Arthur delivery.

Beacon offered $1.30 maximum, 25,000 per month in the three years

at Boston or the open market price plus 5 cents over Standard of New Jersey at New York.

Pan American offered to deliver at Boston, Jacksonville and Tampa at the lowest market price, port of delivery, the Boston price to be 5 cents over Standard of New Jersey.

Cities Service offered to deliver at Boston, up to 25,000 barrels at 5 cents over Standard of New Jersey at New York with a maximum of $1.20 in 1929.

Pure Oil Co. bid to supply at Savannah, at a maximum of $1.15; New Orleans, $1.06; Galveston or Houston, $1.06 and Smith's Bluff and Port Arthur, at 95 cents for 1929 only. or, in lieu thereof in 1929, 900,000 barrels at 89 cents f.o.b. Smith's Bluff.

The Gulf was a low bidder for the furnishing of fuel oil in cargo lots. It offered to supply 1,000,000 at Port Arthur at 73 cents for 1929; 80 cents for 1929 and 1930; or 85 cents for each of the three years on which tenders were invited.

Standard of New Jersey bid on the 1,000,000 barrels of cargo oil for delivery at New Orleans, Baton Rouge or Baytown, at 10 cents under the New Orleans terminal delivery price the bid on which was 94 cents.

The Texas Co. offered 500,000 barrels in full cargo lots at Port Arthur, for 1929 delivery only at 80 cents. Barge line deliveries, wherever offered, were for 5 cents per barrel more than the bid for terminal delivery.

U. S. Oil Works Buys Nine Bulk Stations

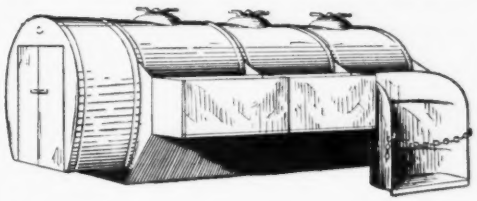
OMAHA, Neb., July 7.—Purchase of June of all the bulk and service stations outside of Omaha operated by the Farmers Paint & Oil Co. and by H. M. Michel, Omaha, has been announced by the U. S. Oil Works here, through Morris Milder, president. Consideration was not made known and the sale does not affect stations owned by Mr. Michel in Omaha and Council Bluffs.

The bulk stations purchased by the U. S. Oil Works are at these towns: Dunbar, West Point, Lodgepole, Norfolk, Murdock, Vanago, Wahoo and Rockville, Neb., and Beardsley, Kan.

Following this purchase, these promotions were made in the sales staff of the company: Gerald Wilson, formerly manager of the 25th and Farnam Sts. service station, to city superintendent of sales in Omaha; S. E. McClain, formerly salesman at Alliance, Neb., director of lubricating oil sales in Nebraska, western Iowa, Wyoming, South Dakota and Colorado; and R. B. Riley, formerly station manager at Gresham, Neb., superintendent of bulk sales at 15 stations outside of Omaha.

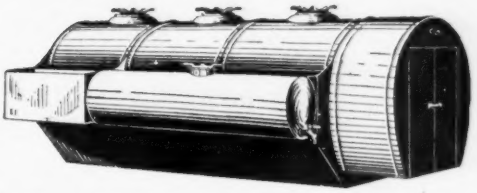
Convertible Truck Tank $150

Capacity Changes to Fit Current Demand and Road Conditions



In an hour a section of the side can racks is replaced with barrel carrier. 50 extra gallons may be carried on each side of the tank. Ride low down without making load top heavy.

Take off two sections of side racks on each side, replace with either 30 or 50 gallon side tanks and extra demand for gasoline, kerosene or lube oil is easily handled. Conversion is made in an hour's time.



Capacity of tank is 375 gallons. Side racks will handle 120 extra gallons in cans. Combination of side racks and side tanks gives up to 140 extra gallons. Combination of side racks and barrel carriers gives 180 extra gallons capacity.

Interchangeable on Chevrolet Trucks or New Ford Truck or others with back of cab lengths around 80 inches. 3-point supported. The tank, the mounting, the pipe lines and the bucket box are welded into an integral unit of steel. $150.00 includes side racks f. o. b. Kansas City. Faucets, side tanks and barrel racks are extra.

COLUMBIAN Partition Mounted 3 Point Supported TRUCK TANK

COLUMBIAN STEEL TANK COMPANY
KANSAS CITY, MISSOURI

Rotary Lift

All Steel and Malleable Construction

Eliminates the possibility of broken parts in transit.

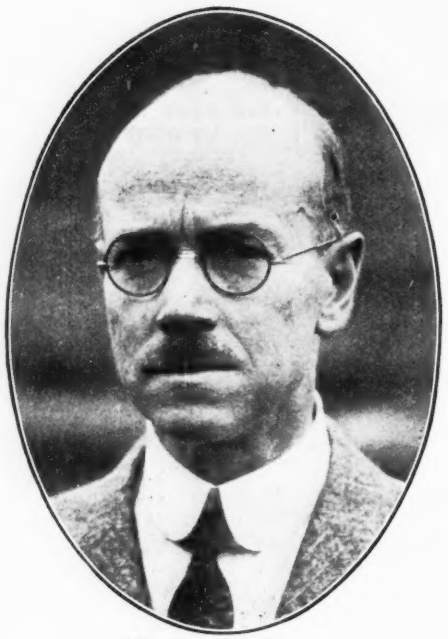
Assures greater durability; more dependable performance.

Electrically welded to insure maximum strength with minimum weight.

Full details without obligation. Write today.

Automobile Rotary Lift Company
MEMPHIS, TENN.

Personal



Mr. S. B. Daugherty

MR. S. B. Daugherty is well known to many natural gas men as a designer and technical gas man. He started with us away back in 1898, assisting in the design of the first thousand horsepower gas engines built in this country. These engines are still in daily use, compressing natural gas.

Then he left us, and in 1916 was again in responsible charge of the design of the largest gas engines in this country, i.e., 46 x 66″ Twin Tandem, 4,500 H.P., double acting engines driving A.C. generators.

Since then he has been more or less of a free-lance designer and consulting engineer. These years have been spent in designing gas compressors and in intimate contact with gas men and their problems.

We were so much impressed by Mr. Daugherty's success in gas engine compressor design that we retained him several years ago to develop a 17 x 24″, 170 H.P. gas engine compressor for us, embodying the very latest from the ground up.

Results never before achieved have been obtained in this 17 x 24″ gas engine compressor, and yet the price is in line with the competition.

The engine is very efficient and economical.

We are making every effort to see that our new catalog on this engine reaches every interested natural gas man. If you have not received the catalog by the time this appears, will you please co-operate with us and write for it, using the coupon.

National Transit Pump & Machine Co.,
19 N. Petroleum St.,
Oil City, Pa.

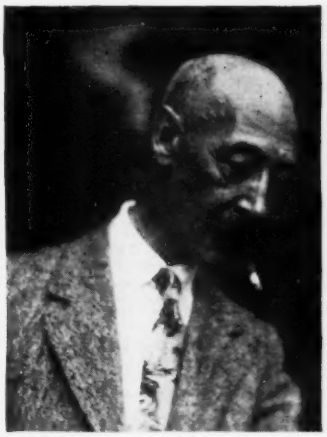
Date .....

Please send me your catalog on your 17 x 24" Gas Engine Gas Compressor designed by Mr. Daugherty.

Name ..... Position .....

Address .....

At Archery These Refiners Were Better Golfers



C. S. Dangler, secretary of the Fred G. Clark Co., at the left, figured how to adjust the arrow to the bow string. Commander G. C. Davison, president of Tri-State Refining Co., center, used some mathematical formula or other in preparing for his shot, while Fayette B. Dow, general counsel of the National Petroleum Association, right, just hauled off and let 'er go

W. E. Wall, president of Wall & Steigerwald, and former president of the N. P. A., at the left, waited breathlessly to see how true his arrow sped. O. P. Kenney, president of the Kenney Oil Co. and a former N. P. A. president, center, spoiled his shot because someone made him laugh. Louis Carruth, president of the Canfield Oil Co., at the right, took careful stance and aim under the tutelage of Fred G. Clark, president of the Fred G. Clark Co., who appears in the background. The occasion was an hour or so of recreation during the meeting of National Petroleum Association trustees June 22 and 23 in Cleveland at the country home of Mr. Clark

Associated is Building 15,000 Barrel Still

LOS ANGELES, July 7.—One of the largest tube stills at any refinery in the country will be used at the new and modern refinery now being erected by the Associated Oil Co. at Watson where the company's large tank farm and topping plant is located. The new plant will have a crude charging capacity of 15,000 barrels, one tube still alone being used.

The distillation equipment, including still, bubble tower and all other fractionating equipment will be installed by E. B. Badger & Sons Co., and work is now in progress, with plans calling for the completion of the new plant by Sept. 15. The refiner output will consist of gasoline, diesel oil and residuum. All of the new facilities will be the latest in design, including the continuous treating system.

A new power plant will not be necessary as the steam plant now in use at the topping plant and pump station for the tank farm will serve the purpose. Neither will it be necessary to build much new steel storage as the tank farm now has about 2,000,000 barrels steel tanks already in use. The old topping plant with a daily capacity of about 12,000 barrels will be left intact and will be run when needed.

The construction work is under the general supervision of L. F. Bayer, vice president in charge of manufacturing, with headquarters at San Francisco, while actual work will be under the immediate supervision of H. B. Haney, assistant chief engineer, who makes his headquarters in Los Angeles.

TULSA, July 7.—Directors of the Natural Gasoline Association will meet at Tulsa on July 17 to consider a report of the research and educational committee. The committee will bring in a report on work which it will ask the research department to do in the coming year.

New Equipment

The International Derrick & Equipment Co., Columbus, O., announces the appointment of Walter T. Hazel as head of sales promotion and sales research departments. Mr. Hazel formerly was for 10 years advertising manager, export and sales manager for the Parkersburg Rig & Reel Co. Charles L. Lockett, who was until recently manager of the Rocky Mountain division of the company, is enroute to Maracaibo, Venezuela. Mr. Lockett will make a comprehensive survey of the Venezuelan and Colombian oil fields.

* * *

Bessemer Engine Co., Grove City, Pa., has announced its new four-cycle engine built with adjustable roller bearings in the crankshaft, lay shaft and governor. The use of roller bearings minimizes friction loss and results in a power plant of unusual smoothness of operation, the company

Bulk Storage and Station Tanks

Forty years successful experience; plant fully equipped for fabricating plate up to 1¼" thick.
Pressure Stills for Cracking Process - Fractionating Towers - Dephlegmating Towers, Bubble Towers - Heat Exchangers - Agitators - Steam Stills - Crude Stills - Condenser Boxes, Run Down Tanks - Blending Tanks - Hemispherical Tanks - Blow Cases - Acid Tanks, Compounding Kettles - Storage Tanks to 80,000 Barrels - Smoke Stacks and Breechings, etc.

THE BIGGS BOILER WORKS COMPANY, Buchtel and Bank Streets, AKRON, OHIO
Eastern Sales Office: 300 Madison Ave., New York *Western Sales Office:* 35 South Dearborn St., Chicago

says. In the general features of construction, it is similar to the standard four-cycle Bessemer oil field engine, employing the familiar Bessemer crosshead construction, enclosed bed plate, combination force feed and splash lubrication and simplified valve mechanism.

Many of the parts in the new engine are interchangeable with parts of the two-cycle oil field engine. Among these are the main frames, flywheels, crossheads and connecting rods.

* * *

The Young Radiator Co., Racine, Wis., announces it has received a one-year contract from the Chicago Pneumatic Tool Co. for the manufacture of their complete line of radiators used for portable compressors.

* * *

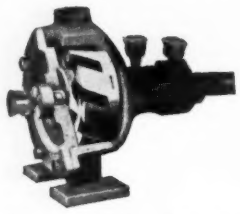
The Chisholm-Moore Mfg. Co., Cleveland, recently purchased by the Columbus McKinnon Chain Co., Tonawanda, N. Y., will be known hereafter as the Chisholm-Moore Hoist Corp. (division of Columbus McKinnon Chain Co.)

"Blue Boy" is the name of a new direct differential hoist being manufactured by the latter company at Cleveland.

* * *

Murdock Pump Co., Indianapolis, Ind., is marketing its air compressor and car washer, claiming that the motor load in its compressors is reduced and power waste eliminated through direct drive. The car washer is of advanced rotary type fire engine pump construction, giving 300 pounds water pressure when needed. It cleans cars faster, better and more easily, the company claims.

The Advantages of Helical Cut Gears

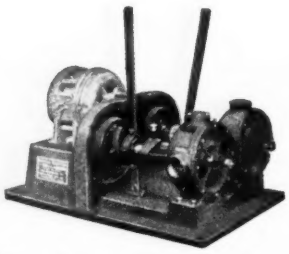


Cut-away section showing the Helical Cut Gears.

IT is a well-known mechanical fact that a helical gear is highly preferable to a spur gear in any piece of machinery, because the helical gear prevents back lash, runs noiselessly and smoothly, stands up under great strain and has far greater lasting qualities. But in the Perfection Rotary Pump, the adaptation of our special design Helical Internal Gear and Helical Pinion has brought still greater advantages.

It will readily be seen and understood from the illustration of the cut-away section that every time a cam of the internal gear passes by the intake and discharge ports, the column of liquid must be cut. Inasmuch as water and other liquids are very little more flexible than solids, it is evident that a straight spur gear or vane or bucket will produce quite a severe shocking action and strain on the pump, especially when the pump is running at high speed, but the Helical Gear eliminates all shocks and vibration because the action of the helical cam on the liquid column is a shearing action, and the intermeshing cams in the internal gear and the pinion do not go into mesh at once but roll together in a smooth and gradual manner.

Write for our new Bulletin No. 271 which illustrates several types of unloading pumps.



Type 6—A twin gear drive unloading pump with motor.

Perfection Manufacturing Co.
2194 East Hennepin Avenue
Minneapolis, Minn.

PERFECTION ROTARY PUMPS

Sold by Oil Equipment Jobbers in most of the principal cities.

New Patents

June 12, 1928

REFINING

Distillation of Liquid Mixtures—James P. Fisher, Bartlesville, Okla., assignor to Heat Treating Company, New York, N. Y. Filed Oct. 7, 1922. No. 1,672,978.

Process for Producing Demulsifying Agents for Refining Petroleum Oil—Edwin D. Gray, Richmond, Calif., assignor to Standard Oil Company of California, San Francisco, Calif. Filed Oct. 4, 1923. No. 1,673,045.

Distillation Heater—Frederic H. Bunge, Lomita, Calif. Filed Dec. 20, 1926. No. 1,673,225.

Apparatus for Distillation—H. Mitchell Godsey, Shreveport, La. Filed July 9, 1923. No. 1,673,238.

Process of Cracking Mineral Crude Oils—Henry Blumenberg, Jr., Moapa, Nev., assignor to A. M. Buley, Los Angeles, Calif. Filed May 18, 1927. No. 1,673,491.

Art of Making Asphalt—Edward A. Rudigier, Baltimore, Md., assignor to Standard Oil Development Company. Filed Aug. 19, 1922. No. 1,673,533.

PRODUCTION

Disk Bit—Hall H. Holdaway, Los Angeles, and Thomas D. Campbell, Pasadena, Calif. Filed April 14, 1924. No. 1,673,285.

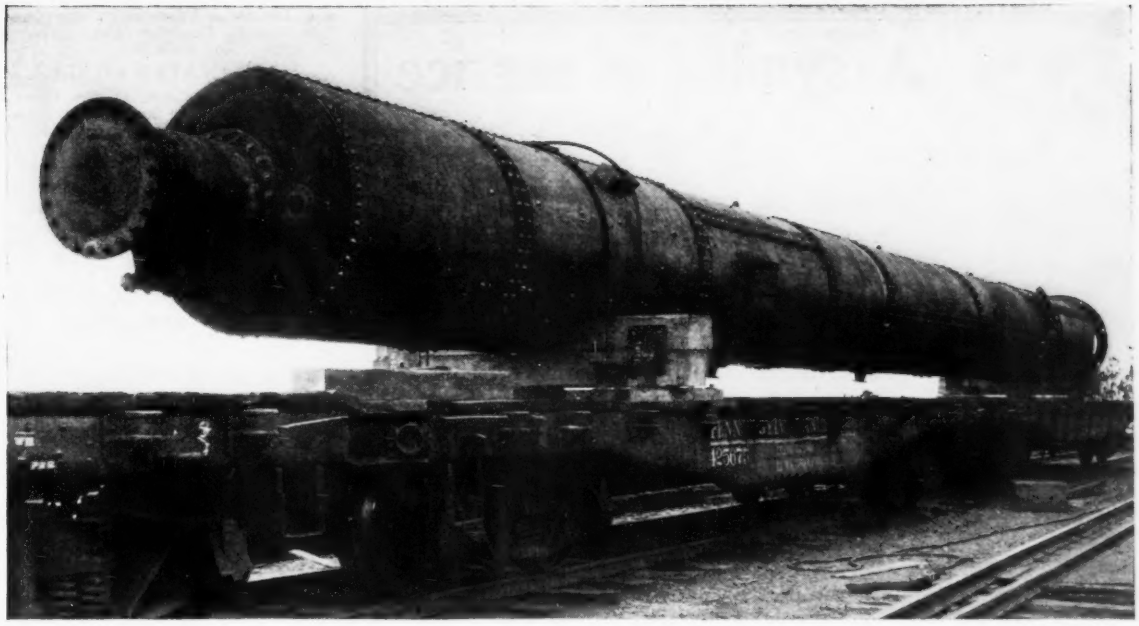
Crown Block—Edwin O. Bennett, Maywood, Calif., assignor to Emsco Steel Products Company. Filed Dec. 11, 1923. No. 1,673,346.

Well-Testing Tool—Conrad T. Nietzel, Dallas, Tex., assignor to Brodie H. Ashby, Dallas, Tex. Filed July 18, 1927. No. 1,673,419.

Polish-Rod Grip—Rex G. Hamaker, Houston, Tex. Filed April 27, 1926. No. 1,673,563.

Method of and Device for Cementing Wells—Alexander Boynton, San Antonio, Tex. Filed Oct. 1, 1925. No. 1,673,616.

Method of Separating Gas and Water from Oil



Adaptability of the Foster Bubble Tower

The Foster bubble tower can be applied to meet an almost infinite variety of conditions in the refinery field. The fractionating tower shown above is designed for operation in a refinery using Venezuela crude and specializing in the manufacture of asphalt. The unit will handle 3,000 to 5,000 barrels of crude per day. It is designed to operate in connection with a Foster tube still.

This bubble tower will recover to specification four overhead fractions. The bottoms will consist of the desired penetration asphalt.

Foster fractionating towers, in connection with Foster tube stills constitute the most efficient and compact unit now available for commercial petroleum refining.

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YOUNGSTOWN, OHIO

Offices in Principal Cities

Youngstown TANKS "KEENE STANDARDIZED MADE"

and Apparatus Therefor—Victor Chancellor and Sebastian L. Calvert, Tulsa, Okla. Filed Feb. 27, 1926. No. 1,673,663.

NATURAL GAS

Method of Producing Carbon Black from Mixtures of Acetylene and Other Hydrocarbons—Leonard R. Churchill, Bayonne, N. J., assignor to Goodyear Tire & Rubber Company, Akron, Ohio. Filed July 11, 1923. No. 1,673,496.

MISCELLANEOUS

Art of Pumping Gasiform Fluids—Frank A. Howard, Elizabeth, N. J., assignor to Standard Oil Development Company. Filed July 21, 1922. No. 1,673,678.

June 19, 1928

REFINING

Process for Separating Hydrocarbons—Cornelius B. Watson, Columbus, Ohio, assignor to The Pure Oil Company, Chicago, Ill. Filed Dec. 26, 1925. No. 1,673,854.

Method of Purifying and Decolorizing Petroleum Hydrocarbons—Alfred Oberle, Oak Park, Ill., assignor to Thomas E. Scofield, Kansas City, Mo. Filed Dec. 1, 1924. No. 1,674,020.

Method of Treating Hydrocarbons—Luis De Florez, Boston, Mass., assignor to The Texas Company, New York, N. Y. Filed July 8, 1919. No. 1,674,390.

Bubble Cap for Bubble-Cap Towers—Edmund Burke, Oak Park, Ill., assignor to Crane Co., Chicago, Ill. Filed April 11, 1927. No. 1,674,464.

PRODUCTION

Tubing Catcher—Edward C. Crago, Kansas City, Mo., assignor to The Ellis Manufacturing Company, Kansas City, Kans. Filed Oct. 21, 1927. No. 1,673,802.

Oil-Well Pump—Irwin B. Winsor, Kansas City, Mo. Filed May 14, 1925. No. 1,673,856.

Sectional Floating Deck for Oil Tanks—Clifton A. Glass, Kansas City, Mo. Filed July 5, 1924. No. 1,674,039.

Well Drilling—Waldo Sheldon, Greenwich, Conn. Filed April 4, 1924. No. 1,674,069.

Pipe Gripping and Supporting Device—Webster F. Traves, Oklahoma City, Okla., assignor to The Guiberson Corporation, Dallas, Tex. Filed Jan. 8, 1927. No. 1,674,144.

NATURAL GAS

Process for the Purification of Gases—Herbert J. Krase, Clarendon, Va., and Harry C. Hetherington and Alfred T. Larson, Washington, D. C., assignors to Arthur B. Lamb. Filed March 2, 1926. No. 1,673,877.

Cooling Tower—Norman O. Fleming, Huntington Park, Calif., assignor to The Atmospheric Cooling Co., Inc., Huntington Park, Calif. Filed Oct. 5, 1926. No. 1,674,281.

Apparatus for Analyzing Gas—Frank J. Bast, Brooklyn, N. Y., assignor to Charles J. Tagliabue Mfg. Co., Brooklyn, N. Y. Filed Jan. 24, 1925. No. 1,673,898.

Sealing Construction for Tanks—John Kuhl, Oakland, Calif., assignor to Standard Oil of California, San Francisco, Calif. Filed Dec. 11, 1926. No. 1,673,983.

Sealing Construction for Tanks—John Kuhl, Oakland, Calif., assignor to Standard Oil Company of California, San Francisco, Calif. Filed Dec. 11, 1926. No. 1,673,984.

Floating Roof for Oil Tanks—Clifton A. Glass, Kansas City, Mo. Filed April 18, 1924. No. 1,674,038.

Underreamer—Walter H. Hazlett, Long Beach, Calif., assignor to Chester A. Rasmussen, Long Beach, Calif. and William A. Trout, Los Angeles, Calif. Filed Oct. 23, 1924. No. 1,674,040.

Storage Tank—Jay Albert Stough, Tulsa, Okla. Filed Sept. 8, 1927. No. 1,674,073.

Floating-Deck Oil Tank—Charles R. Gallagher, Los Angeles, Calif., assignor to Universal Holding Company. Filed April 20, 1925. No. 1,674,104.

Process for Distilling Solid Carbonaceous Material—Milon J. Trumble, Los Angeles, Calif. Filed Sept. 11, 1923. No. 1,674,420.

Purification of Crude Aromatic Hydrocarbons—Alphons O. Jaeger, Crafton, Pa., assignor to The Selden Company, Pittsburgh, Pa. Filed April 12, 1926. No. 1,674,472.

Manufacture and Production of Oxygenated Products from Hydrocarbons or Oxidizable Derivatives of Hydrocarbons—William Augustus Caspari, London, England. Filed Nov. 6, 1926. No. 1,674,589.

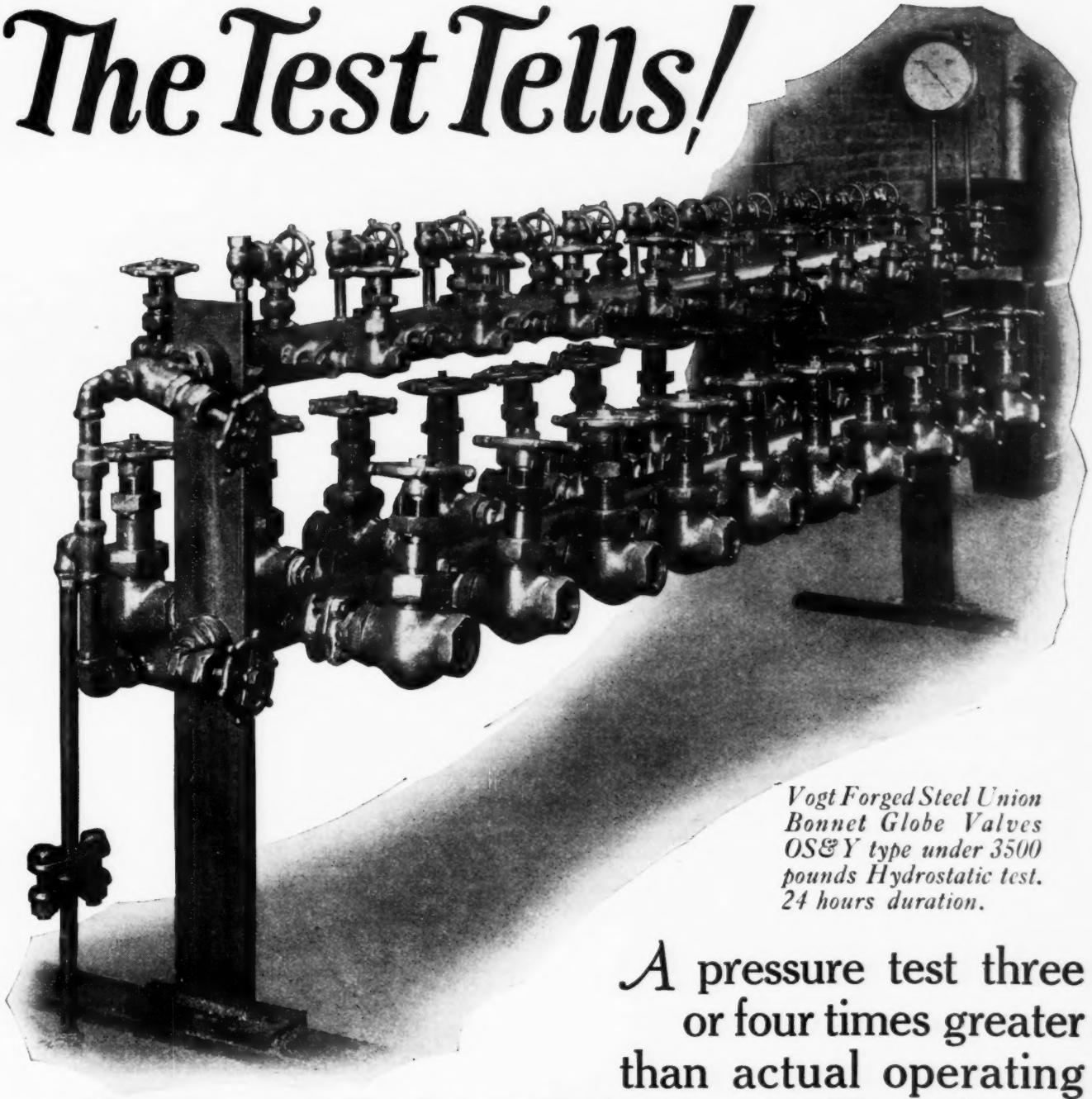
June 26, 1928

REFINING

Process for Treating Oils with Liquid Sulfur Dioxide—Wilhelm Hess, Berlin-Grosslichterfelde-West, Germany, assignor to Allgemeine Gesellschaft fur Chemische Industrie m.b. H., Berlin-Schoneberg, Germany. Filed Oct. 28, 1926. No. 1,674,676.

Process for Refining and Stabilizing Hydrocarbons—Eugene Albert Prudhomme, Neuilly-sur-Seine, France, assignor to Societe Internationale des Procedes Prudhomme (S. I. P. P.), Paris, France. Filed April 7, 1926. No. 1,674,796.

The Test Tells!



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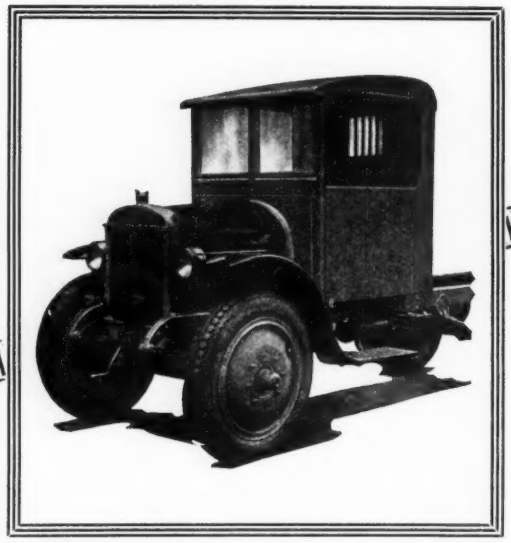

A NEW HIGHLAND CAB

MODEL RB 54

LIKE all Highland Cabs, this new Model RB-54 shows a keen insight into the driver's and owner's problems.

While it was especially designed for dump trucks, or trucks used in work which required considerable backing, it can be used wherever a curtain cab is preferred.

Notice the large, clear opening at the side, permitting the driver to see where he is going in backing up without straining or stretching himself from a safe driving position. This wide opening also facilitates signalling.

From top to bottom this Highland Cab is built for the most rugged service. The panels are of 16 gauge steel. The roof is of ⅛ inch steel as protection against falling materials and insulated to insure driving comfort.

And mounted on the Highland Rocker Sill Mounting, both driver and cab are relieved of the stresses and strains of rough going. The cab rides always on an even keel with the radiator. This mounting is a special Highland feature and is found on no other make of cabs.

But not until you use a Highland Cab and see how much better it is, how it speeds up deliveries and cuts down repairs will you realize that there can be such a difference between just a cab and Highland Cabs. Specify Highland Cabs on your next trucks—there is one for every make and model.

THE HIGHLAND BODY MFG. CO.
430 Elmwood Place Cincinnati, Ohio

HIGHLAND *Cabs*
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HOW MUCH HAS IT COST YOU
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This loss is unnecessary, and could be prevented by the use of Brown Oil-tight Storage Tanks

NO EXTRA COST

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BROWN SHEET IRON & STEEL CO.
St. Paul, — Minnesota

Process for Distilling Emulsified Oils—Gustav Egloff and Harry P. Benner, Chicago, Ill., assignors to Universal Oil Products Company, Chicago, Ill. Filed Aug. 29, 1920. No. 1,674,819.

Carbonaceous Fuel and Process of Making Same—Alfred Oberle, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill. Filed May 9, 1923. No. 1,674,837.

Mineral-Oil Still—Arthur E. Pew, Jr., Bryn Mawr, Pa., assignor to Sun Oil Company, Philadelphia, Pa. Filed June 19, 1925. No. 1,674,918.

Release Valve—Samuel E. Turner, Wichita Falls, Tex., assignor to Panhandle Refining Company, Wichita Falls, Tex. Filed Jan. 10, 1927. No. 1,674,933.

PRODUCTION

Device for Unscrewing Pipe in Wells—Dempson Herbert Reed, Houston, Tex. Filed Jan. 31, 1924. No. 1,674,798.

Swab for Deep Wells—Ray P. Watson, Russell, Kans. Filed March 6, 1926. No. 1,674,812.

Art of Removing Oil from Oil Wells—Walter J. Barnhart, Los Angeles, Calif., assignor to D. R. Morrow. Filed Feb. 2, 1926. No. 1,674,815.

Process and Apparatus for Cracking Oil—William R. Howard, Washington, D. C., assignor to Universal Oil Products Company, Chicago, Ill. Filed Sept. 17, 1920. No. 1,674,827.

Brake Drum for Bull Wheels and the Like—Burwell Boykin Jr., Beaumont, Tex. Filed Dec. 11, 1926. No. 1,674,851.

Slip Joint for Well Casings—Thomas E. Adams, Beatrice, Nebr. Filed Feb. 1, 1927. No. 1,674,938.

Fluid-Packed Pump—Ford W. Harris, Los Angeles, Calif., assignor to Ensco Derrick and Equipment Company, Los Angeles, Calif. Filed March 30, 1927. No. 1,675,100.

NATURAL GAS

Gas and Oil Trap—Gustave A. Overstrom, Pasadena, Calif. Filed Oct. 12, 1923. No. 1,674,699.

Method and Mechanism for Continuously Distilling and Condensing Hydrocarbons—Alexander Clarke, Charleston, W. Va., assignor to United Hydrocarbons Company, Charleston, W. Va. No. 1,674,852.

Method of Producing Oxidation Products from Gaseous Hydrocarbons—Joseph Hiddy James, Pittsburgh, Pa., assignor to Clarence P. Byrnes, Pittsburgh, Pa. Filed Nov. 21, 1926. No. 1,675,029.

MISCELLANEOUS

Process of Separating the Neutral Oils in Tars, Tar Oils, and Pitches from Acid Constituents—Herbert Wittek, Beuthen, Germany. Filed April 14, 1927. No. 1,674,710.

Tank Wagon—Frank R. Filter, Waltham, Mass., assignor to Standard Oil Company of New York, New York, N. Y. Filed April 17, 1924. No. 1,675,294.

Process of Continuously Distilling Carbonaceous Fuel—Walter Edwin Trent, Washington, D. C., assignor to Trent Process Corporation, New York, N. Y. Filed Dec. 22, 1922. No. 1,675,315.

Oil Trademarks for Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists.

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"AIR LUBE" No. 263,515. Richfield Oil Co. of California, Los Angeles, Cal. For lubricating oil.

"PARADOL" No. 259,026. Seymour-Howard Corp., Chicago, Ill. For lubricating oils and greases, lubricating oil bases and ingredients, and cutting oils and compounds.

"C R G CO" No. 265,094. Cushing Refining & Gasoline Company, Cushing, Okla. For gasoline.

Noyes B. Livingston and O. B. Reynolds are now associated with Roy A. Reynolds, consulting geologist, with offices in the Fort Worth National Bank building, Fort Worth.

Refinery - Tank Wagon Markets

National Petroleum News

Export and Domestic Buying Keep Mid-Continent Gasoline Active

Staff Special
TULSA, July 7

EXPORT and brisk domestic buying kept the Mid-Continent gasoline market active the first week of July. Prices advanced fractionally on virtually all grades. Approximately 2,500,000 gallons of export gasoline were bought. Exporters were still in the market at the close of the week.

Domestic buying was exceptionally good in all areas, partly because of the July 4 holiday, shipments running considerably above the daily average for the last week in June.

Natural gasolines continued to advance in price with all grades reported scarce. Some new contracts were made while others were permitted to expire.

Kerosenes were in good demand for export with at least 1,500,000 gallons bought, and inquiries out for more goods. Prices were generally steady except in Texas where they moved up slightly late in the week. Domestic buying was quiet in most districts. Distillate, gas oil, neutral oils, cylinder stocks and wax were generally unchanged.

Fuel oils were comparatively inactive with Oklahoma refiners encountering considerable competition from other areas. Stocks of fuel continued to increase as buying lagged.

Gasolines

Export demand was felt again the first week of July in virtually all fields of the Mid-Continent. Approximately 2,500,000 gallons of 64-66, 375 e.p. gasoline were bought in Oklahoma, Texas and Arkansas by one export company. This company was reported seeking 4,000,000 gallons to complete two cargoes. Prices paid were 8.50 cents, f.o.b. north Texas, and 8.375 cents a gallon, Group 3.

Reports from Texas July 7 indicated that buyers were still active, with one export company representative seeking options on the 375 e.p. gasoline at 8.75 cents a gallon.

Domestic buyers kept the U. S. Motor and lower gravity gasolines active. Refiners reported an exceptionally good business each day, and several of them said they were far behind on shipments at present. Before the end of the week virtually every refiner in Oklahoma was asking 8 cents a gallon for 58-60 U. S. Motor, and the weighted average touched 8 cents July 6.

Much of the buying was believed to be for replacements after the heavy July 4 holiday consumption. Reports gathered daily by *Platt's Oilgram* and NATIONAL PETROLEUM NEWS would indicate this to be the case, although there was the usual amount of first-of-the-month buying.

For the week of June 22 to 29 inclusive, Oklahoma refiners reporting spot sales booked 497 cars of 58-60 U. S. Motor. For the week of June 30 to July 6, the same companies sold 637 cars, an increase of 140 cars. This increase was in the face of the Wednesday holiday when no sales were reported.

This situation is typical of the other areas. Refiners in Arkansas and Louisiana have been enjoying an exceptionally good demand, while the Kansas and Texas refiners have been kept busy booking orders.

Natural Gasolines

Demand for all grades of natural gasolines continued to be good. Prices moved well above 7 cents a gallon, with the lower grades reported unusually scarce.

Buying has been from numerous sources. Refiners have been using more naturals as export buying continued good, and several manufacturers report they are receiving instructions either for additional cars or for the maximum shipments on contracts.

The New Orleans Refining Co. is understood to have renewed a contract with Chestnut & Smith Corp. for a quantity of grade AA for the next 12 months, the price to be "market date of shipment" basis. The New Orleans company is understood to have allowed other contracts in this field to expire with no attempts made to renew them. The single contract with Chestnut & Smith is not for as large a quantity as the company bought last year, when approximately 1500 cars a month were being shipped from the Mid-continent on various contracts.

Several manufacturers report their storage is lower than it has been at any previous time this year, and that they are virtually sold up for the remainder of this month. One large company has been buying as much of the lower grades as possible to fill out on orders already on the books, while another has been buying grade AA in small lots also to fill out on orders. There was much speculation the latter part of the week as to just how much Chestnut & Smith would have to buy in order to fill the contract with the New Orleans company.

Kerosenes

At least two export companies were actively inquiring throughout the week for kerosene. Purchases of 1,500,000 gallons were reported in various fields, with indications more would be purchased later in the month. One Oklahoma refinery sales manager said his check of the situation led him to believe that at least 7,000,000 gallons of kerosene would be bought before the end of July.

Some of the kerosene was 44 gravity. Prices paid were not announced, but one refiner in Arkansas said he had had an offer of 5.70 cents a gallon, f.o.b. refinery. The difference in freight rates from Arkansas to the Gulf as compared with those from Group 3 to the Gulf is slightly under 0.50 cent a gallon, which would make the price approximately 5.25 cents a gallon, Group 3 basis.

Oklahoma and Texas refiners sold some 41-43 gravity kerosene at 4.375 and 4.25 cents a gallon respectively, and as late as Friday exporters indicated they would buy more goods at these prices. One company also has bought a quantity in Texas for coastwise movement during July.

Refinery Markets on LightOils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices July 9	Prices July 2	Prices June 25
52-54 Naphtha	10.00 –10.25	9.75 –10.25	9.75 –10.50
54-56 Naphtha	10.00 –10.375	9.75 –10.25	10.00 –10.75
58-60 U.S. Motor 437 e.p.	10.50 –11.00	10.50 –11.00	10.50 –11.00
60-62 400-410 e.p. gasoline	11.00 –11.50	11.00 –11.50	10.75 –11.50
64-66 390 e.p. gasoline	11.50 –11.75	11.25 –12.00	11.375–11.75
68-70 Str.-run gas. 350-360 e.p.	12.00 –12.50	11.75 –13.00	11.50 –12.50
OKLAHOMA			
48-50 450 e.p. naphtha	†7.50 – 7.75	†7.375	†7.25 – 7.375
50-52 450 e.p. naphtha	†7.50 – 7.75	†7.375	†7.25 – 7.375
56-58 450 e.p. gasoline	7.75 – 7.875	7.50	7.375– 7.50
58-60 450 e.p. gasoline	7.875– 8.00	7.625	7.50 – 7.625
64-66 390 e.p. gasoline	8.375	8.125– 8.25	8.125
68-70 350-360 e.p. gasoline	8.50 – 8.625	8.50	8.375 – 8.50
OKLAHOMA (Weighted Average Prices)			
58-60 U.S. Motor, 437 e.p.	8.0187	7.9493	7.9304
60-62 437 e.p. gasoline	8.1500	8.1320	7.9271
60-62 400 e.p. gasoline	8.2500	8.1429	8.1250
64-66 375 e.p. gasoline	8.5625	8.2917	8.3036

Above are weighted average prices, current week's prices being effective on Saturday, instead of Monday, Saturday being the last day on which weighted averages are available for publication in this table. Weighted average prices for the current Monday are published on page 37 of this issue. The two previous week's prices shown are corrected to show Monday's prices, effective on the dates shown at the top of the columns.

KANSAS (F. O. B. refinery Kansas destination)			
58-60 U.S. Motor 437 e.p.	8.25 – 8.375	8.125– 8.25	8.00 – 8.25
60-62 400 e.p. gasoline	8.50 – 8.625	8.25 – 8.375	8.25 – 8.375
64-66 375 e.p. gasoline	8.75	8.375	8.375
NORTH TEXAS			
48-52 450 e.p. naphtha	†7.25 – 7.375	†7.25	†7.25
56-58 450 e.p. gasoline	†7.50	†7.375– 7.50	†7.375– 7.50
58-60 450 e.p. gasoline	†7.50 – 7.625	†7.50	†7.50
58-60 U.S. Motor 437 e.p.	8.00	7.875– 8.00	7.875– 8.00
60-62 400 e.p. gasoline	8.25	8.125– 8.25	8.125– 8.25
64-66 390 e.p. gasoline	8.25 – 8.375	8.25	8.25
64-66 375 e.p. gasoline	8.50 – 8.75	8.50 – 8.625	8.50
68-70 350-360 e.p. gasoline	8.75	8.50 – 8.625	8.50 – 8.625
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	8.50 – 8.75	8.50 – 8.625	8.50
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
58-60 450 e.p. gasoline	7.875– 8.125	7.875– 8.125	7.875– 8.125
58-60 U.S. Motor 437 e.p.	8.625	8.50	8.50
‡CALIFORNIA			
54-58 U.S. Motor 437 e.p.	9.00 –12.00	8.50 –12.00	8.00 –11.50
58-61 U.S. Motor 437 e.p.	9.00 –13.00	9.00 –13.00	10.00 –13.00
42-45 Eng. dis. 445-480 e.p.	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00

‡3c tax to be added to California gasoline prices if used in state.

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	**7.375– 7.50	‡7.00 – 7.125	**6.50 – 6.625
Grade A, 72-79.9, 90% Recovery	**7.375– 7.50	‡7.00 – 7.125	**6.50 – 6.625
Grade BB, 84-92, 85% Recovery	**7.25	‡6.875– 7.00	6.25
Grade B, 76-83.9, 85% Recovery	**7.25	‡6.875– 7.00	6.25
Grade C, 80-92, 78% Recovery	**7.25	‡6.875– 7.00	6.25

‡Untreated Grade AA sold for 6.75c per gal. July 2.

NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	**7.375– 7.50	‡7.00 – 7.125	**6.50 – 6.625
Grade A, 72-79.9, 90% Recovery	**7.375– 7.50	‡7.00 – 7.125	**6.50 – 6.625
Grade BB, 84-92, 85% Recovery	**7.25 – 7.375	‡6.875– 7.00	6.25
Grade B, 76-83.9, 85% Recovery	**7.25 – 7.375	‡6.875– 7.00	6.25
Grade C, 80-92 78% Recovery	**7.25	‡6.875– 7.00	6.25

‡All grades naturals represent quotations and offers to buy.

NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†7.75	†7.00 – 7.25	†6.50 – 6.75
Grade BB	†7.50	†6.50 – 6.75	†6.25 – 6.50
Grade C	†7.50	†6.50 – 6.75	†6.25 – 6.50
CALIFORNIA			
75-85, 375-390 e.p. blend	5.50 – 7.00	5.50 – 7.00	6.00 – 7.00

MOTOR FUEL BLENDS

OKLAHOMA			
64-66 Blend 437 e.p.	†7.75	†7.50	†7.50

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	6.125– 6.50	6.25 – 6.75	6.50 – 7.125
46 w.w. kerosene	6.50 – 7.00	6.625– 7.00	6.75 – 7.375
47 w.w. kerosene	6.875– 7.25	6.875– 7.25	7.125– 7.50
300 mineral seal	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75

OKLAHOMA	Prices July 9	Prices July 2	Prices June 25
41-43 w.w. kerosene	4.50 – 4.75	4.50 – 4.75	4.625– 4.75
42-44 w.w. kerosene	4.875– 5.00	4.875– 5.00	5.00
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	4.75 – 5.125	4.75 – 5.125	4.75 – 5.125
42-44 w.w. kerosene	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
NORTH TEXAS			
40-42 w.w. kerosene	4.25	†4.125– 4.25	†4.125– 4.25
41-43 w.w. kerosene	4.375	†4.375– 4.50	†4.375– 4.50
NORTH LOUISIANA (N. La. Ark. and Miss. destination)			
41-43 w.w. kerosene	5.25	5.25	5.25
ARKANSAS (Arkansas destination only)			
42-44 kerosene	5.25	5.25	5.25
CALIFORNIA			
38-40 w.w. kerosene	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00

NEUTRAL OIL

PENNSYLVANIA Vis.		(Viscosity at 70°F.)	
200 No. 3 Assoc. Filt.	32.50 –33.50	32.00 –33.50	33.00 –34.00
180 No. 3 Assoc. Filt.	31.00 –31.75	30.50 –31.50	31.50 –32.00
150 No. 3 Assoc. Filt.	27.00 –28.00	27.00 –28.00	27.50 –28.00
	(Non Viscous)		
34 Grav. 330-340 Flash	7.50 – 9.00	7.75 – 9.00	7.75 – 9.00
36 Min. Neut. 300-305 Flash	7.00 – 8.50	7.00 – 8.50	7.00 – 8.50
**OKLAHOMA Vis. Color	(Viscosity at 100°F.)		
100—No. 2	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
150—No. 3	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
150—No. 4	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180—No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 4	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
180—No. 5	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
200—No. 3	9.625–11.00	9.625–11.00	9.625–11.00
200—No. 4	9.50 –10.75	9.50 –10.75	9.50 –10.75
200—No. 5	8.50 –10.00	8.50 –10.00	9.00 –10.50
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	13.50 –14.00	13.50 –14.00	13.50 –14.00
240—No. 4	13.25 –13.50	13.25 –13.50	13.25 –13.50
240—No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
280—No. 3	15.50 –16.50	15.50 –16.50	15.50 –16.50
280—No. 4	15.25	15.25	15.25
280—No. 5	14.00 –15.00	14.00 –15.00	14.00 –15.00
300—No. 5-6	17.00	17.00	17.00
**GULF COASTAL Vis. Color	(Viscosity at 100°F., pour test 0)		
100—No. 2 Unfilt. Pale	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
200—No. 3 Unfilt. Pale	10.00 –10.50	10.00 –10.50	10.00 –10.50
300—No. 3 Unfilt. Pale	11.00 –11.50	11.00 –11.50	11.00 –11.50
500—No. 3½ Unfilt. Pale	13.00 –13.50	13.00 –13.50	13.00 –13.50
750—No. 4 Unfilt. Pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200—No. 5½ Red Oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300—No. 5½ Red Oil	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
500—No. 6 Red Oil	10.50 –11.00	10.50 –11.00	10.50 –11.00
750—No. 6 Red Oil	13.50 –14.00	13.50 –14.00	13.50 –14.00
**CALIFORNIA Vis. Color	(Viscosity at 100°F.)		
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50 –12.00	11.50 –12.00	11.50 –12.00
300—No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
450—No. 3	15.50 –16.00	15.50 –16.00	15.50 –16.00
550—No. 3	16.50 –17.00	16.50 –17.00	16.50 –17.00
600—No. 3	17.00 –17.50	17.00 –17.50	17.00 –17.50
200—No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
300—No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
400—No. 5	14.00 –14.50	14.00 –14.50	14.00 –14.50
500—No. 5	15.00 –15.50	15.00 –15.50	15.00 –15.50
600—No. 5	16.00 –16.50	16.00 –16.50	16.00 –16.50
700—No. 7	18.00 –18.50	18.00 –18.50	18.00 –18.50

CYLINDER STOCKS

**OKLAHOMA			
190-200 Vis. at 210° Brt. St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis. at 210° Brt. St.	21.50 –24.00	21.50 –24.00	21.50 –24.00
600 E St. 140-150 Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	8.00 –10.00	8.50 –10.00	8.50 –10.00
600 St. Ref. Dark Green	6.00 – 8.00	6.00 – 8.00	6.00 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	12.00 –13.50	11.75 –13.00	11.50 –13.00
650 Steam Refined	14.50 –15.50	13.75 –15.50	13.50 –15.50
600 Flash	16.50 –18.00	16.50 –18.00	16.50 –18.00
625 Flash	27.00 –29.00	27.00 –29.50	27.00 –29.50
600 Warren E	17.50 –18.50	17.50 –18.00	17.00 –18.00
600 Oil City E	17.00 –17.50	16.50 –17.00	16.50 –17.00
600 D Filtered	22.50 –26.00	22.50 –26.00	22.00 –26.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	35.00 –36.00	35.00 –36.00	35.00 –36.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	33.00 –34.00	33.00 –34.00	33.00 –34.00

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher)

†Prices nominal ††Only one refiner quoting *Quotations only **Represents both sales and quotations

Domestic demand for kerosenes has been comparatively quiet.

Distillates and Gas Oil

A small amount of distillate buying for storage was being done but the spot demand was slow. Refiners continued to work mostly on contracts for the winter season. Two or three refiners have said recently that they would not be nearly as active in the open market this season as in the past, either because of curtailment in manufacturing or because of their increased distribution through their own marketing systems.

Gas oils were generally quiet. A few buyers have approached refiners for contracts on zero cold test goods, but little actual contracting has been done to date. No changes were noted in prices.

Fuel Oils

With only a few exceptions Mid-Continent refiners say fuel oils are causing them the most trouble at present. The situation has developed into strictly a buyers' market. Stocks have been steadily increasing. Early in the week some 18-22 gravity fuel oil sold for resale at 57.5 cents a barrel, the goods originating in Oklahoma. The prevailing quotation for this grade of goods in Oklahoma, however, has been 60 cents a barrel, with a few sales at slightly higher prices.

Competition from other areas, notably southwest Texas, has cut into the Oklahoma market. Several refiners in southwest Texas are reported to have their storage almost full with no prospect of orders in sufficient volume to give them any relief.

There probably is a bit of sweet with the bitter. Several Oklahoma and Kansas refiners have said that as long as the fuel oil market is as weak as it has been the past few weeks, there will be a decided tendency to hold down crude runs in those districts. And with the runs curtailed there will be a lowered production of gasoline, provided cracking operations are not started on an extensive scale. Lower gasoline production just at this time and with stocks at their present level probably would do much toward further stimulating gasoline prices.

Neutrals, Cylinders and Wax

Inquiries for neutral oils and cylinder stocks have been comparatively quiet. but prices are generally unchanged over those in effect the last week in June. Demand prior to this week has been fair in anticipation of the harvesting season, and refiners for the most part now are expecting little activity other than the general run of orders for the next few weeks.

Wax prices were unchanged. Inquiries were not so numerous but a majority of refiners are still well sold up. Exporters have bought at both 4.125 and 4.25 cents a pound, while domestic trade has been paying generally 4.25 cents.

Gulf Coastal Water Shipments, May Compared with April

(All Figures in Barrels of 42 Gallons)

Company—Port	Coastwise Refined April	Coastwise Refined May	Export Refined April	Export Refined May
Standard of Louisiana, Baton Rouge,	899,284.00	732,792.00	766,218.00	725,403.00
The Texas Company, Port Arthur	1,284,217.00	1,343,834.00	420,782.00	319,775.00
Gulf Refining Co., Port Arthur	2,152,063.43	1,809,577.08	197,241.91	105,594.46
Magnolia Petroleum Co., Beaumont	1,362,135.04	1,740,043.19(a)	.....	.....
Humble Oil & Refg. Co., Baytown	1,560,709.82	1,516,064.13	1,470,978.68	1,445,002.04
Atlantic Oil Producing Co., Atreco	69,463.97	156,908.20	.....	.....
Deepwater Oil Refineries, Houston	.....	.....	100,000.00	15,000.00
Pure Oil Company Smiths Bluff	317,871.94	496,723.36	.....	.....
Crown Central Pet. Corp., Houston	.....	.....	.....	.....
Totals	7,645,745.20	7,795,941.96	2,955,220.59	2,610,774.50
	Coastwise Crude		**Export Crude**	
Standard of Louisiana, Baton Rouge	351,330.00	586,331.00	106,570.00	53,186.00
The Texas Company Port Arthur	.....	.....	.....	.....
Gulf Refining Company, Port Arthur	.....	.....	.....	.....
Magnolia Petroleum Co., Beaumont.	844,608.90	684,279.07(a)	.....	.....
Humble Oil & Refg. Co., Texas City	760,974.00	766,690.00	.....	40,443.00
Baytown	353,999.00	602,467.00	.....	.....
Ingleside	1,658,361.00	1,715,470.00	.....	77,994.00
Neches	.....	59,462.00	.....	.....
Atlantic Oil Producing Co., Atreco	376,400.18	560,612.59	.....	.....
Beaumont	633,086.60	369,920.63	.....	.....
Smiths Bluff	.....	.....	.....	.....
Pasadena	.....	.....	.....	.....
Swiftsure Petroleum Co., Texas City	240,518.00	328,179.91	.....	.....
Pure Oil Company Smiths Bluff	679,813.10	244,474.36	.....	.....
Sun Oil Company Sabine Pass	461,368.00	454,004.00	.....	.....
Crown Central Pet. Corp. Houston	.....	.....	.....	.....
Totals	6,370,458.78	6,371,890.56	106,570.00	171,623.00

(a) Magnolia Petroleum Company makes no distinction in reports between coastwise and export shipments.

Magnolia Pipe Line Runs April-May

HOUSTON, July 7. — Magnolia Petroleum Company, pipeline department, announces from Dallas headquarters the following crude oil runs for May, which are shown in comparison with April:

	April	May
Hewitt-Graham	162,328.86	186,439.68
Healdton	227,649.65	245,103.92
Cushing	127,988.26	127,682.24
Yale	51,387.60	56,153.11
Duncan	41,961.29	44,365.67
Augusta	37,177.13	38,879.58
Walters-Beaver Creek	7,195.47	7,265.95
Burbank	84.02	138.14
Wewoka	834,695.33	727,821.08
Seminole	263,088.75	239,216.20
Total, Okla.-Kans.	1,753,556.36	1,673,065.57
Archer	33,808.82	33,021.36
Burkburnett	74,771.10	76,206.46
Comanche	17,369.18	20,621.26
Electra	100,216.03	102,900.29
Corsicana heavy	9,067.33	10,208.71
Corsicana light	12,601.30	14,267.14
Henrietta	3,518.87	3,376.57
Iatan	29,177.55	31,873.18
Luling	349,458.19	369,262.87
Lytton Springs	58,107.19	57,030.06
Mexia-Wortham	31,296.68	31,004.36
Mirando	57,836.63	56,101.48
Olden	10,250.03	10,845.74
Panhandle	115,989.62	114,824.47
Panola	986.78	1,815.89
Stephens	9,034.35	8,800.80
Thrall	1,130.38	1,196.93
Gulf Coast	1,289.82	1,721.33
Crane-Upton	465,524.58	339,213.89
Glasscock	719.96	514.34
Winkler	83,563.06	59,864.44
Total Texas	1,465,717.45	1,344,671.57
Haynesville	2,186.04	3,035.80
Bull Bayou	42,585.22	44,635.09
Cotton Valley	27,303.40	25,628.72
Pine Island	38,307.28	41,497.36
Hackberry	37,754.34	28,905.74
Total Louisiana	148,136.28	143,702.71
El Dorado light	29,096.56	44,830.79
East El Dorado	3,237.94	2,790.01
Smackover	73,312.79	78,685.39
Total Arkansas	105,647.29	126,306.19
Grand Total	3,473,057.38	3,287,746.04

OKLAHOMA — KANSAS

Report for May		Daily Average
Runs	2,118,102	68,326
Shipments	2,040,403	65,820
Total stock	8,396,642	.....

TEXAS

Wichita, Wilbarger, Archer		
Runs	212,581	6,857
Shipments	272,478	8,790
Petrolia		
Runs	3,377	110
Shipments	3,377	110
Eastland, Stephens		
Runs	40,268	1,299
Shipments	86,832	2,801

Total stock .....328,740.00—North Central Texas Field.

Operates Under Trust Agreement

TULSA, July 7.—E. H. Eddleman has been made general manager of the American Refinery Properties which were purchased recently by a creditors committee of the former American Refining Co. Mr. Eddleman was receiver for the company while it was under the jurisdiction of the courts and prior to that was a vice president of the Continental Oil Co. of Texas.

Mr. Eddleman announced that the refinery and other properties will be operated under a trust agreement among the creditors who have provided ample capital to carry on the business. W. L. Scott is manager of refinery sales.

Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, **F. O. B.** refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices July 9	Prices July 2	Prices June 25
Per pound, New York			
122-124 white crude scale	4.375	4.25 – 4.50	4.25 – 4.50
124-126 white crude scale	4.50	4.50	4.50
OKLAHOMA			
**124-126 White Crude Scale	4.125– 4.25	4.125– 4.25	4.25
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil	5.00 – 5.125	4.75 – 5.00	5.00 – 5.25
30-34 fuel oil	4.625– 4.875	4.50 – 4.875	4.75 – 5.00
28-32 fuel oil	4.625	4.50 – 4.625	4.50 – 5.00
OKLAHOMA			
38-40 straw distillate	2.875– 3.00	2.875– 3.00	2.875– 3.00
36-38 straw distillate	2.75	2.75	2.75
32-36 gas oil, straw	†2.50 – 2.75	†2.50 – 2.75	†2.50 – 2.75
32-36 dark gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50
28-30 fuel oil (in bbls.)	$0.85 – 0.875	$0.85 – 0.875	$0.85 – 0.875
26-28 fuel oil (in bbls.)	$0.775– 0.825	$0.775– 0.825	$0.775– 0.825
24-26 fuel oil (in bbls.)	**$0.675–0.725	**$0.70– 0.75	**$0.70– 0.75
22-26 fuel oil (in bbls.)	**$0.625	**$0.65	**$0.65– 0.70
18-22 fuel oil (in bbls.)	**$0.60– 0.65	**$0.625–0.65	**$0.65– 0.70
16-18 fuel oil (in bbls.)	**$0.575	**$0.60	**$0.625–0.65
14-16 fuel oil (in bbls.)	**$0.575	**$0.60	**$0.625–0.65
KANSAS (F. O. B. refinery Kansas destination.)			
38-40 straw distillate	3.25	3.25	3.25
36-38 straw distillate	3.00	3.00	3.00
32-36 gas oil	2.625– 2.75	2.625– 2.75	2.625– 2.75
24-26 fuel oil	*$0.75 – 0.80	*$0.80– 0.825	*$0.80 – 0.825
18-22 fuel oil	*$0.70	*$0.70– 0.725	*$0.70 – 0.725
NORTH TEXAS			
38-40 straw distillate	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
32-36 gas oil, cracked	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
32-36 gas oil, uncracked	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
24-26 fuel oil (in bbls.)	$0.50 – .525	$0.575– 0.60	$0.60

†Prices Nominal ††Only One Refiner Quoting *Quotations only

GULF COASTAL	Prices July 9	Prices July 2	Prices June 25
Fuel (in bbls.)	$1.30 –$1.35	$1.30 –$1.35	$1.30 –$1.35
Gas oil	4.25 – 4.375	4.25 – 4.375	4.25 – 4.375
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	2.625– 2.875	2.625– 2.875	2.625 – 2.875
32-36 gas oil, straw	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
16-20 fuel oil (in bbls.)	$0.70	$0.70 – 0.75	$0.80
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
32-36 gas oil	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
28-32 gas oil	2.75	2.75	2.75
Road Oil	$1.15	$1.15	$1.15
CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (in bbls.)	$0.65 –$0.75	$0.65 –$0.75	$0.70 –$0.85
14-18 Bunker oil (in bbls.)	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
30-34 gas oil (in bbls.)	$0.90 –$1.10	$0.90 –$1.10	$0.95 –$1.10
27 Plus Diesel oil (in bbls.)	$0.90 –$1.00	$0.90 –$1.00	$0.90 –$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f.o.b. refinery. In tank cars ½c to ¾c per pound less.)

Snow White	8.125– 8.375	8.125– 8.375	8.25
Lily White	7.125– 7.375	7.125– 7.375	7.25
Cream White	6.125– 6.375	6.125– 6.375	6.25
Blonde	††4.50	††4.50	††4.50
Light Amber	3.375– 3.625	3.375– 3.625	3.25 – 3.50
Amber	3.125	3.125	3.00 – 3.125
Red	2.75 – 2.875	2.75 – 2.875	2.75
Green No. 5 color	‡	‡	‡

‡No refiner quoting.

PETROLEUM COKE

****OKLAHOMA**

(Per ton in car lots)

Lump	$4.50– 5.00	$4.50 – 5.00	$4.50 – 5.00
Still run	$2.75– 3.00	$2.75 – 3.00	$2.75 – 3.00
Breeze	$1.75– 2.00	$1.75 – 2.00	$1.75 – 2.00

**Represents Both Sales and Quotations

Week's Price Changes Tank Wagon Markets

Gasoline Changes

Atlantic Refining—Correction: due to typographical error, the date of the 1 cent advance on gasoline prices in Pennsylvania and Delaware on page 116 in the July 4 issue of NATIONAL PETROLEUM NEWS was published as June 7. Correct date of advance was **June 27.**

Standard of Indiana—Changes in the Q. D. A., July 9, throughout S. O. Indiana territory, resulted in the elimination of the 1 cent per gal. discount for dumps from 50 gals. up to 750 gals. for the month. New Q. D. A. begins with a discount of ½ cent per gallon for 750 gals. to 1999 gals. per month; 1 cent per gal. for 2000 gals. to 5999 gals.; 1½c for 6000 gals. to 9999 gals; 2c for 10,000 gals. to 14,999 gals.; and 3c for 15,000 gals. and above, per month.

Discounts on 6000 gals. and over a month are the same as under old schedule. The old Q. D. A. carried discounts of ½c per gal. on 750 to 2000 gals.; ¾c per gal. on 2000 to 2999 gals.; 1c on 3000 to 5999 gals. These were supplanted in practice by the dump concessions.

Service station Q. D. A. is unchanged.

Kerosene Prices

Standard of Indiana—T. w. price kerosene reduced 1 cent, through territory, **July 9.** The 1 cent per gal. discount for dumps of 50 gallons or more at one dump was eliminated on the same date.

Venezuela Crude Quoted at 90 Cents

NEW YORK, July 7.—Quotations for spot cargoes of Venezuela crude continued at around $0.90 a barrel, f.o.b. deepwater in the Lake Maracaibo region, although this price is admitted as largely nominal. There has been little spot demand for this oil since the reduction last week in the posted price of bunker oil at New York, a factor which determines largely the price of Venezuela crude. A readjustment downward in prices for spot cargoes will likely be made in the course of the next week or two, according to trade reports.

Reserve Gas Line Sold

PITTSBURGH, July 6.—Arkansas Natural Gas Corp. has bought the remaining half interest in the Reserve Natural Gas Co. pipe line from the Dixie Gulf Pipe Line Co. for a consideration said to be $1,200,000. Arkansas has had the other half interest since last year. The line extends from Shreveport to Port Arthur and Houston.

Exports from Tampico District

Company	April	May
Transcontinental Petroleum Co., (Standard of New Jersey)	473,266	483,301
Pan American Eastern Oil Co.	1,494,076	1,150,197
Mexican Eagle Oil Co., (El Aguila)	923,191	613,978
Cia. Mexicana Holandesa "La Corona"	302,430	284,811
The Texas Co. of Mexico, S.A.	203,030	70,624
Sinclair Mexican Companies	127,087	226,191
East Coast Oil Co. of Mexico, S.A. (Southern Pacific)	.....	.....
Pierce Oil Corporation	.....	52,793
Mexican Atlas Oil Co.	61,666	.....
La Espuela Oil Co.	.....	.....
Mexican Oil Products Co.	37,817	.....
Panuco Boston Oil Co.	66,284	.....
Empire Gas & Fuel Co.	174,700	127,884
Cia. Mexicana Minerva, S.A.	.....	.....
Penn Mex Fuel Co.	196,556	168,236
New England Fuel Oil Co.	.....	.....
Moctezuma Terminal	20,750	.....
Mexican Gulf Oil Co.	63,599	218,178
Totals	4,144,452	3,396,193

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for 1927, 1926, 1925, 1924 arranged for quick reference)

These Prices in Effect July 9, 1928, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Atlantic City, N. J.	16	2	18	20	14
Newark, N. J.	16	2	18	20	14
Annapolis, Md.	16	4	20	23	14
Baltimore, Md.	16	4	20	23	12
Cumberland, Md.	16	4	20	23	14
Washington, D. C.	16	2	18	21	14
Danville, Va.	16	5	21	*	14
Norfolk, Va.	15	5	20	20	14
Richmond, Va.	16	5	21	24	14
Roanoke, Va.	16	5	21	24	14
Petersburg, Va.	16	5	21	24	14
Charleston, W. Va.	16	4	20	23	14
Keyser, W. Va.	16	4	20	23	14
Parkersburg, W. Va.	16	4	20	23	14
Wheeling, W. Va.	16	4	20	23	14
Charlotte, N. C.	16	4	20	23	14
Hickory, N. C.	16	4	20	23	14
Mt. Airy, N. C.	16	4	20	23	14
Salisbury, N. C.	16	4	20	23	14
Charleston, S. C.	16	5	21	24	14
Columbia, S. C.	16	5	21	24	14

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	17	0	17	*19	15
Albany, N. Y.	17	0	17	20	15
Buffalo, N. Y.	17	0	17	19	15
Rochester, N. Y.	17	0	17	20	15
Syracuse, N. Y.	17	0	17	19	15
Boston, Mass.	17	0	17	19	15
Augusta, Me.	17	4	21	23	15
Manchester, N. H.	17	4	21	23	15
Burlington, Vt.	17	3	20	22	15

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	17	*	17	*22	14
Philadelphia, Pa.	17	*	17	*22	14
Allentown, Pa.	17	*	17	*22	14
Erie, Pa.	17	*	17	*22	14
Scranton, Pa.	17	*	17	*22	14
Altoona, Pa.	17	*	17	*22	14
Dover, Del.	17	3	20	22	14
Wilmington, Del.	17	3	20	22	14
Providence, R. I.	17	2	19	21	15
Boston, Mass.	17	0	17	19	15
Springfield, Mass.	17	0	17	19	15
Worcester, Mass.	17	0	17	19	15
Hartford, Conn.	17	2	19	21	14
New Haven, Conn.	17	2	19	21	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Ashland, Ky.	15	5	20	22	15.5
Catlettsburg, Ky.	15	5	20	22	15.5
Lexington, Ky.	14	5	19	21	15.5
Louisville, Ky.	14	5	19	21	14
Covington, Ky.	15	5	20	21	15.5
Clarksdale, Miss.	15	4	19	21	14.5
Gulfport, Miss.	††16.5	4	††20.5	22.5	14
Jackson, Miss.	15	4	19	21	14.5
Natchez, Miss.	14.5	4	18.5	20.5	14
Vicksburg, Miss.	14.5	4	18.5	20.5	14
Birmingham, Ala.	17	4	21	23	16
Mobile, Ala.	17	4	21	23	15
Montgomery, Ala.*	18	4	22	24	16.5
Atlanta, Ga.	17	4	21	23	†16.5
Augusta, Ga.	17	4	21	23	†16.5
Macon, Ga.	17	4	21	23	†16.5
Savannah, Ga.	15	4	19	19	14.5
Jacksonville, Fla.	15	5	20	22	13.5
Miami, Fla.	17	5	22	24	15.5
Tampa, Fla.	15	5	20	22	13.5
Pensacola, Fla.	**16	5	**21	23	13.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Chicago, Ill.	14	0	14	16	11
Decatur, Ill.	14.2	0	14.2	16.2	11.1
E. St. Louis, Ill.	13.1	0	13.1	15.35	10.2
Joliet, Ill.	14.4	0	14.4	16.4	11.3
Peoria, Ill.	14.2	0	14.2	16.2	11.1
Quincy, Ill.	14.2	0	14.2	16.2	10.9
Indianapolis, Ind.	14.2	3	17.2	19.2	12.2
Evansville, Ind.	14	3	17	19	12
South Bend, Ind.	14.4	3	17.4	19.4	12.4
Detroit, Mich.	14.8	3	17.8	19.8	12.7
Grand Rapids, Mich.	14.7	3	17.7	19.7	12.6
Saginaw, Mich.	14.9	3	17.9	19.9	12.8
Green Bay, Wis.	14.6	2	16.6	18.6	11.4
Madison, Wis.	14.3	2	16.3	18.3	11.1
Milwaukee, Wis.	14.1	2	16.1	18.1	10.9
La Crosse, Wis.	15.2	2	17.2	19.2	12
Minneapolis, Minn.	15.2	2	17.2	19.2	11.9
Duluth, Minn.	15.5	2	17.5	19.5	11.9
Mankato, Minn.	15.1	2	17.1	19.1	11.7
Des Moines, Ia.	14.5	3	17.5	19.5	11.3
Davenport, Ia.	14.5	3	17.5	19.5	11.3
Sioux City, Ia.	14.1	3	17.1	19.1	10.9
Mason City, Ia.	14.5	3	17.5	19.5	11.3
St. Louis, Mo.	*15.6	2	15.6	17.9	10.3
Kansas City, Mo.	†14.9	2	16.9	18.9	9.6
St. Joseph, Mo.	†14.5	2	16.5	18.5	10.2
Fargo, N. D.	16.9	2	18.9	20.9	13.9
Grand Forks, N. D.	17.2	2	19.2	21.2	14.2
Minot, N. D.	16.9	2	18.9	20.9	13.9
Pierre, S. D.	15.5	4	19.5	21.5	12.9
Huron, S. D.	15.5	4	19.5	21.5	12.9
Wichita, Kans.	12.8	2	14.8	16.8	9.8
Bartlesville, Okla.	12.5	3	15.5	17.5	9.5

S. O. Indiana's quantity discount schedule on tank wagon deliveries of gasoline is ½c for 750 gals. or more a month; 1c for 2,000 gals. or more a month; 1½c for 6,000 gals. or more a month; 2c for 10,000 gals. or more a month, and 3c for 15,000 gals. or more a month.

Service station discount is 2c per gal. to consumers of 200 gals. or more a month. All discounts adjusted annually.

*Includes city tax of ½c.

†Includes city tax of 1c.

CONTINENTAL OIL

Denver, Colo.	14	3	17	20	14.5
Pueblo, Colo.	14	3	17	20	14.5
Grand Junction, Colo.	17.5	3	20.5	23.5	18
Casper, Wyo.	15	3	18	20	13
Cheyenne, Wyo.	16	3	19	21	14.5
Butte, Mont.	19.5	3	22.5	22.5	19
Helena, Mont.	19.5	3	22.5	24.5	19
Salt Lake City, Utah	17.5	3½	21	23	17
Boise, Ida.	19.5	4	23.5	25.5	19
Twin Falls, Ida.	19.5	4	23.5	25.5	19
Alburquerque, N. M.	17	5	22	25	17

S. O. CALIFORNIA

Phoenix, Ariz.	12	4	16	20	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

S. O. LOUISIANA

Little Rock, Ark.	15	5	20	22	12
Alexandria, La.	14	2	16	18	†14
Baton Rouge, La.	13	2	15	17	†12.5
Lake Charles, La.	14.5	2	16.5	18.5	†14
New Orleans, La.	*14.5	2	*16.5	*18.5	†14
Shreveport, La.	14.5	2	16.5	18.5	†13
Lafayette, La.	14	2	16	18	†13.5
Bristol, Tenn.	17	3	20	22	14
Chattanooga, Tenn.	16.5	3	19.5	21.5	15
Knoxville, Tenn.	17	3	20	22	15
Nashville, Tenn.	16	3	19	21	15
Memphis, Tenn.	14	3	17	19	14

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

S. O. OHIO

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
All Ohio points	14	3	17	19	14

S. O. NEBRASKA

Omaha, Neb.	14.25	2	16.25	18.25	12.25
McCook	15.75	2	17.75	19.75	13.75
Norfolk	14.75	2	16.75	18.75	12.75
North Platte	15.75	2	17.75	19.50	13.50
Scottsbluff	15.75	2	17.75	19.75	13.25

MAGNOLIA PETROLEUM

Muskogee, Okla.	15	3	18	20	11
Oklahoma City	14	3	17	19	11
Tulsa, Okla.	13	3	16	18	11
Fort Smith, Ark.*	13	*3	16	18	12
Little Rock, Ark.	15	5	20	22	12
Texarkana, Ark.*	13.5	*3	16.5	20.5	12
Dallas, Tex.	13	3	16	20	11
Fort Worth, Tex.	13	3	16	19	11
Houston, Tex.	13	3	16	20	15
San Antonio, Tex.	13	3	16	19	10
El Paso, Tex.	14	3	17	20	16

*Within City of Texarkana and Fort Smith, the state tax on gasoline is 3c per gal. conforming with the Texas state tax. In these two districts outside of the city the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	15.4	*18.9	*20.7
Minneapolis	*18.7	*20.2	*22
St. Louis	14.6	16.1	17.9
New York		19	....

*Includes 2c state tax. †Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Toronto	19.5	3	22.5	26	21
Ottawa	19.5	3	22.5	26	21
Cochrane	24.5	3	27.5	36	26
Ft. William	22.5	3	25.5	29	22.5

MANITOBA

Winnipeg	21.5	3	24.5	28	21.5

SASKATCHEWAN

Regina	25.5	3	28.5	33	25.5

ALBERTA

Edmonton	26.5	3	29.5	33	26.5
Calgary	22.5	3	25.5	29	22.5

BRITISH COLUMBIA

Vancouver	21	3	24	28	22

QUEBEC

Montreal	20.5	5	25.5	29	21
Quebec City	22.5	5	27.5	33	23
Three Rivers	22.5	5	27.5	31	23

NEW BRUNSWICK

St. John	22.5	3	25.5	30	22
Moncton	22.5	3	25.5	30	

NOVA SCOTIA

Halifax	22.5	5	27.5	32	22
Sydney	22.5	5	27.5	32	22

PRINCE EDWARD ISLAND

Charlottetown	22.5	5	27.5	31	22

Note: In districts surrounding these points 1c additional is added to city price.

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Colorado, 1/10c on both; Florida, 1/8c; Indiana, 2/25c; Kansas, 1/50c; Louisiana, 1/32c on gasoline, 1c on kerosene; Minnesota, 3/50c; Missouri, 1/50c; Nebraska, 3/50 to 1/2c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 4/25c; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c on gasoline and 1/2c on kerosene; Wisconsin, 3/50c.

Kerosene inspection fees only: Iowa, 13/100c; Michigan, 1/5 to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above states or other states there are local inspection fees.

Export Prices Higher as Buyers Turn to Fall Requirements

Staff Special
NEW YORK, July 7

FOREIGN buyers in the Gulf export market this week for early fall gasoline requirements found higher prices prevailing. One grade reached a new high price level for 1928.

Report from a large United States refiner operating extensively in France explains partially for the heavy buying evidenced of late from that section of Europe. This company reported an increase of 70 per cent in its retail business thus far in 1928 over the corresponding period of 1927. A large tourist trade from the States, the company said, is a major factor in the increase in business.

A number of buyers entered the market off and on throughout the week. Only one full cargo sale was reported together with several small part cargoes but the week ended with nearly 300,000 barrels of goods still under negotiation.

The one full cargo closed consisted of approximately 32,000 barrels of U. S. Motor and 64-66, 375 end point gasoline which sold at 9.25 cents and 10.25 cents, respectively. Shipment will be from a north Atlantic port the latter part of July but the foregoing prices are on an f.o.b. Gulf basis. The same buyer, a French company, following this sale up with an inquiry for a similar cargo for second half of September loading.

The trade was somewhat staggered by the inquiry made by a United Kingdom buyer late in the week. An approximate total of 160,000 barrels of U. S. Motor gasoline, 64-66, 365 end point gasoline, prime white and water white kerosene was being sought by this company for Sept.-Oct. shipment from the Gulf. The company is also a large operator in the French market and it is generally believed the high gravity gasoline is for this market inasmuch as little high test specification goods are used in the United Kingdom.

The French subsidiary of a leading independent refiner entered the market July 6 for approximately 65,000 barrels of U. S. Motor and 64-66, 375 end point gasoline, prime white and water white kerosene for Aug.-Sept. loading. Suppliers other than the parent company were working on the business.

The transaction is scheduled for closing early next week. It is being watched with considerable interest in view of the fact that slightly more than half of the cargo will consist of kerosene. No sales of either water white or prime white have been made in several weeks. The trade is wondering whether or not prices at the Gulf are ready as yet to reflect the lower prices prevailing in the field.

Suppliers ideas of prices for water white and prime white kerosene were unchanged at 7.25 cents and 6.25 cents, respectively.

The heavy oil market was unsettled and prices for cargoes of bunker C were largely nominal. As one leading supplier expressed it, "A buyer could almost write his own ticket." Four cargoes of low gravity bunker C were offered at $0.70 a barrel late this week. The general market for both high and low gravity goods averaged $0.75 to $0.85.

Bunkers at Gulf ports were unchanged at $0.95 in the New Orleans district up to $1.10 further west. Prices were 5 cents a barrel lower at $1.10 in the Tampico district.

Eastern Gasoline Consumption Heavy Over July 4

Staff Special
NEW YORK, July 7

HEAVY consumption of gasoline over the July 4 holiday brought a slight improvement to the quiet market that has prevailed since the first of this month.

The holiday weather was conducive to motoring. The city practically was deserted by motorists who left for trips to seashore and country.

Except for occasional orders for spot cars the week was comparatively quiet in eastern tank car markets. During June jobbers stocked up for their July requirements and as yet they have found no need to make additional purchases.

Tank car and tank wagon markets were steady throughout the week. There were few changes in either U. S. Motor or California U. S. Motor gasolines.

According to several New York buyers the bulk California gasoline market is considerably tighter. The last paid prices for cargoes of California gasoline were 7.875 and 8 cents. Most refiners on the west coast are reported now to be asking 8.50 to 9 cents.

New York harbor price for U. S. Motor remained 10.75 cents throughout the week. While California gasoline at this point was quoted at 11 cents by a majority of sellers, one seller reported he had sold a small lot at 11.25 cents.

Philadelphia refiners reported a generally slow demand. Prices were steady at 10.75 cents for both grades.

U. S. Motor at Boston and Providence continued to be quoted at a minimum of 12.50 cents delivered.

Gasoline quotations at Baltimore ranged from 10.75 to 11 cents for U. S. Motor and 11 cents for the California grade.

Other southern seaboard points were generally unchanged with the exception of Savannah and Jacksonville where low priced goods was reported out of the way. Both Savannah and Jacksonville were quoted at 10.25 cents flat.

U. S. Motor at Norfolk and Charleston was quoted at 10.75 and 10.50 cents, respectively.

Kerosene markets at seaboard points were without material change.

Water white was quoted at 8 cents in New York harbor and approximately the same at Baltimore and Philadelphia.

East coast bunker markets still were in somewhat of an unsettled state. Some shading of posted prices was reported.

Wax Demand is Slight; Prices Unchanged

NEW YORK, July 7.—There was little demand for wax from foreign buyers during the week ended July 7. Prices for all grades of white crude scale and fully refined waxes were generally unchanged.

Small lots of white crude scale were traded in New York throughout the week at around 4.375 cents, although the majority of large suppliers were asking 4.50 cents. The fully refined grades continued largely nominal in price. Scarcity of offerings prevented any distress lots from shaking this section of the market from its firm position.

White crude scale at New Orleans was unchanged at 4.25 to 4.50 cents a pound. No improvement was noted in the demand from South America. Continental buyers showed only nominal interest in the market.

Djevad Eyoub, geologist, formerly stationed at Laredo, Texas, has been transferred to Tampico, Mexico, headquarters of the Empire Gas & Fuel Co.

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the years 1924-1925-1926-1927)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, represent majority of quotations and sales.)

	July 9	July 2	June 25
U.S. Motor gasoline, New York harbor	10.75	10.75	10.75
U.S. Motor gasoline, Philadelphia	10.75	10.75	10.50 -10.75
U.S. Motor gasoline, Boston district	*11.25	*11.25	*11.25
U.S. Motor gasoline, Providence district	*11.25	*11.25	*11.25
U.S. Motor gasoline, Baltimore	10.75 -11.00	10.75 -11.00	10.75
U.S. Motor gasoline, Norfolk	10.75	10.75	10.75
U.S. Motor gasoline, Charleston	10.50	10.50	10.50
U.S. Motor gasoline, Savannah	10.25	10.00 -10.25	10.00 -10.25
U.S. Motor gasoline, Jacksonville	10.25	10.00 -10.25	10.00 -10.25
California U.S. Motor gasoline, New York Harbor	11.00	11.00	11.00
California U.S. Motor gasoline, Baltimore	11.00	11.00	10.75
California U.S. Motor gasoline, Philadelphia	10.75	10.75	10.50 -10.75
Water white kerosene, New York Harbor	8.00	8.00	8.00
Water white kerosene, Philadelphia	7.75 - 8.00	7.75 - 8.00	7.75 - 8.00
Water white kerosene, Baltimore	8.00	8.00	8.00
28-34 gas oil, New York harbor	5.00	5.00 - 5.25	5.00 - 5.25
28-34 gas oil, Boston district	5.00 - 5.25	5.00 - 5.25	5.00 - 5.25
36-40 furnace oil, New York harbor	6.00	6.00	6.00
36-40 furnace oil, Boston district	6.25 - 6.50	6.25 - 6.50	6.25 - 6.50
Grade C bunker oil, New York harbor	$1.15	$1.15	$1.25
Grade C bunker oil, Boston district	$1.20	$1.20	$1.25
Diesel oil, New York harbor	$2.00	$2.00	$2.00

Note: Above prices do not include inspection tax levied in some states.
*Minimum of 12.50c delivered.

MEDICINAL OILS

Russian 885-890 s.g., 325-330 vis	$0.80 - 0.90	$0.80 - 0.90	$0.80 - 0.90
Russian 870-875 s.g., 150-155 vis	$0.67 - 0.77	$0.67 - 0.77	$0.67 - 0.77
Russian 860-865 s.g., 80-85 vis	$0.65 - 0.75	$0.65 - 0.75	$0.65 - 0.75

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products.)

	July 9	July 2	June 25
U. S. Motor gasoline	25.90	25.90	25.90
43-45 150 w.w. kerosene	18.40	18.40	18.40
42-44, 110 s.w. kerosene	17.40	17.40	17.40
CYLINDER OILS			
Bright stock, dark	40.00 -41.00	40.00	40.00
600 D filtered	30.00 -32.00	30.00 -32.00	30.00 -32.00
600 Warren E filtered	24.50 -25.50	24.50 -25.00	24.50 -25.00
600 s.r. unfiltered	19.00 -20.00	18.50 -20.00	18.50 -20.00
650 s.r. unfiltered	21.00 -22.00	21.00 -22.00	21.00 -22.00
600 flash s.r.	24.00 -26.00	23.00 -26.00	23.00 -26.00
630 flash, s.r.	34.00 -36.00	34.00 -36.00	34.00 -36.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.50	19.50	19.50
250 vis. No. 6 color	18.50	18.50	18.50
200 vis. No. 6 color	18.00	18.00	18.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.50	23.50	23.50
180 vis. No. 3¼ color	19.50	19.50	19.50
100 vis. No. 2¼ color	15.25	15.25	15.25
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	34.50	34.50	34.50
500 vis. No. 6½ color	32.50	32.50	32.50
400 vis. No. 7¼ color	30.50	30.50	30.50
300 vis. No. 6 color	29.50	29.50	29.50
200 vis. No. 3¼ color	23.00	23.00	23.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70

WAXES (In cents per pound, f.a.s. carload lots)
WHITE CRUDE SCALE (In barrels)

	July 9	July 2	June 25
122-124 A.m.p.	4.375- 4.50	4.375- 4.50	4.375- 4.50
124-126 A.m.p.	4.375- 4.50	4.375- 4.50	4.375- 4.50
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	4.875- 5.125	4.875- 5.125	4.875- 5.125
125-127 A.m.p.	4.875- 5.125	4.875- 5.125	4.875- 5.125
128-130 A.m.p.	5.25 - 5.375	5.25 - 5.375	5.25 - 5.375
130-132 A.m.p.	*6.00	*6.00	*6.00
133-135 A.m.p.	*6.50	*6.50	*6.50
135-137 A.m.p.	*7.00	*7.00	*7.00
YELLOW CRUDE SCALE			
124-126 A.m.p.	4.125- 4.25	4.125- 4.25	4.125- 4.25

*Prices nominal.

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over unless otherwise noted, representing sellers' opinions, except those prices specified to the contrary)

GASOLINE	July 9	July 2	June 25
U.S. Motor	*9.375	9.25	9.125- 9.25
60-62, 400 e.p.	9.625	9.50	9.375
61-63, 390 e.p.	9.875-10.00	9.75	9.625
64-66, 375 e.p.	*10.375	10.00	9.875-10.00
U. S. Motor, cases (cargoes)	$1.75	$1.75	$1.75
64-66, cases (cargoes)	$1.85	$1.85	$1.85

*Sales only.

KEROSENE			
44 water white	*7.25	7.25	7.25
41-43 prime white	*6.25	6.25	6.25
Water white, cases (cargoes)	$1.65	$1.65	$1.65
Prime white, cases (cargoes)	$1.55	$1.55	$1.55
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.875- 4.00	3.875- 4.00	3.875- 4.00
*30-32 translucent gas oil	4.00	4.00	4.00
Grade C bunker oil	$0.95 - 1.10	$0.95 - 1.10	$0.95 - 1.10
Grade C bunker oil, cargoes	$0.75 -$0.85	$0.85	$0.85 - 0.90

*Less than ½ of 1% sulfur.

MEXICAN CRUDE AND BUNKER OILS (F.O.B. Steamer, Tampico)

Heavy Panuco crude taxes to be paid	$1.00 -$1.02	$1.00 -$1.05	$1.00 -$1.05
Grade C bunker oil, for bunkering purposes, taxes paid	$1.10	$1.15	$1.15

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F.; cold test 0) (Tanker, f.o.b. Houston)

100 vis. No. 2 unfiltered pale	6.00	6.00	6.00
200 vis. No. 3 unfiltered pale	7.75 - 8.00	7.75 - 8.00	7.75 - 8.00
300 vis. No. 3 unfiltered pale	9.25 - 9.50	9.25 - 9.50	9.25 - 9.50
500 vis. No. 3½ unfiltered pale	11.50 -12.00	11.50 -12.00	11.50 -12.00
750 vis. No. 4 unfiltered pale	12.50 -13.00	12.50 -13.00	12.50 -13.00
1200 vis. No. 5 unfiltered pale	15.50 -16.00	15.50 -16.00	15.50 -16.00
200 vis. No. 5-6 red oil	7.00 - 7.50	7.00 - 7.50	7.00 - 7.50
300 vis. No. 5-6 red oil	8.00 - 8.50	8.00 - 8.50	8.00 - 8.50
500 vis. No. 5-6 red oil	10.00 -10.50	10.00 -10.50	10.00 -10.50
750 vis. No. 5-6 red oil	11.25 -11.50	11.25 -11.50	11.25 -11.50
1200 vis. No. 5-6 red oil	14.50 -15.50	14.50 -15.50	14.50 -15.50

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	July 9	July 2	June 25
Gasoline, U. S. Motor, 53-55 Gravity	8.25 - 8.75	8.00 - 8.50	7.75 - 8.00
Gasoline, U. S. Motor, blends and special cuts	8.00 - 9.00	8.00 - 9.00	8.00 - 9.00
Gas Oil, 30-34, per barrel	$1.10 -$1.15	$1.10 -$1.15	$1.10 -$1.20
Diesel Oil, 27 plus, per barrel	$0.95 -$1.10	$0.95 -$1.10	$0.95 -$1.10
Bunker oil, 14-18, per barrel	$0.80 -$1.00	$0.80 -$1.00	$0.80 -$1.00
Fuel oil, 14-18, per barrel	$0.75 -$1.00	$0.75 -$1.00	$0.75 -$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	4.50 - 5.00	4.50 - 5.00	4.50 - 5.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 -$1.85	$1.75 -$1.85	$1.75 -$1.85
Kerosene, 38-40 w.w., 125-150 flash	$1.45 -$1.50	$1.45 -$1.50	$1.45 -$1.50

Crude Oil Prices, as Posted by Major

(Crude prices for years 1924-1925-1926-1927 in

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.20
Bradford District Oil in National Transit Lines (Bradford District)	3.20
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.10
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.10
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.00
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	2.85
Keister Grade in National Transit Lines (Butler Co.)	1.20
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.45
Corning Grade in Buckeye Pipe Lines (Ohio)	1.70
Corning, O. heavy grade	1.60
Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.55
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines	$1.50

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Wooster	$1.57	Plymouth	$1.23
Lima	1.55	West Kentucky	1.33
Waterloo	1.20	*Canadian Petro.	1.95
Indiana	1.32	*Oil Springs	2.02
Princeton	1.50	*Posted by Imperial Oil Ltd.	
Illinois	1.50		

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective Feb. 21, 1928

28-28.9	$0.96	41-41.9	$1.43
29-29.9	1.01	42-42.9	1.46
30-30.9	1.06	43-43.9	1.49
31-31.9	1.11	44-44.9	1.52
32-32.9	1.16	45-45.9	1.55
33-33.9	1.19	46-46.9	1.58
34-34.9	1.22	47-47.9	1.61
35-35.9	1.25	48-48.9	1.64
36-36.9	1.28	49-49.9	1.67
37-37.9	1.31	50-50.9	1.70
38-38.9	1.34	51-51.9	1.73
39-39.9	1.37	52 and above	1.76
40-40.9	1.40		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Effective Feb. 21, 1928

Below 25	$0.76	26-26.9	$0.86
25-25.9	0.81	27-27.9	0.91

Humble Prices (Cont'd)

28-28.9	$0.96	37-37.9	$1.31
29-29.9	1.01	38-38.9	1.34
30-30.9	1.06	39-39.9	1.37
31-31.9	1.11	40-40.9	1.40
32-32.9	1.16	41-41.9	1.43
33-33.9	1.19	42-42.9	1.46
34-34.9	1.22	43-43.9	1.49
35-35.9	1.25	44 and above	1.52
36-36.9	1.28		
Mirando, Tex			$1.00

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Feb. 21, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades, unchanged from Feb. 16:

Below 30	$0.75
30-30.9	0.90
31-31.9	1.05
Glasscock and Howard Counties	$0.60
Chalkfield (Howard Co.)	$0.80
Iatan district	$0.93
Corsicana heavy	$1.00

Carter Oil Co.

(Oklahoma and Kansas)

Feb. 21, same schedule as Prairie plus these grades:

24-24.9	$0.76	26-26.9	$0.86
25-25.9	0.81	27-27.9	0.91

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective Feb. 21, 1928

Hutchinson and Carson Counties:

Below 31	$0.60	38-38.9	$0.88
31-31.9	0.65	39-39.9	0.91
32-32.9	0.70	40-40.9	0.94
33-33.9	0.73	41-41.9	0.97
34-34.9	0.76	42-42.9	1.00
35-35.9	0.79	43-43.9	1.03
36-36.9	0.82	44 and above	1.06
37-37.9	0.85		

Wheeler County:

Below 29	$0.60	37-37.9	$0.95
29-29.9	0.65	38-38.9	0.98
30-30.9	0.70	39-39.9	1.01
31-31.9	0.75	40-40.9	1.04
32-32.9	0.80	41-41.9	1.07
33-33.9	0.83	42-42.9	1.10
34-34.9	0.86	43-43.9	1.13
35-35.9	0.89	44 and above	1.16
36-36.9	0.92		

Gray County:

Below 27	$0.60	36-36.9	$1.02
27-27.9	0.65	37-37.9	1.05
28-28.9	0.70	38-38.9	1.08
29-29.9	0.75	39-39.9	1.11
30-30.9	0.80	40-40.9	1.14
31-31.9	0.85	41-41.9	1.17
32-32.9	0.90	42-42.9	1.20
33-33.9	0.93	43-43.9	1.23
34-34.9	0.96	44 and above	1.26
35-35.9	0.99		

WEST TEXAS

Humble Oil & Refining Co.

Effective Aug. 23, 1927

Crane, Upton, Crockett and Pecos Counties	$0.60

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton and De Soto

Effective Feb. 21, 1928

Below 28	$0.91	40-40.9	$1.40
28-28.9	0.96	41-41.9	1.43
29-29.9	1.01	42-42.9	1.46
30-30.9	1.06	43-43.9	1.49
31-31.9	1.11	44-44.9	1.52
32-32.9	1.16	45-45.9	1.55
33-33.9	1.19	46-46.9	1.58
34-34.9	1.22	47-47.9	1.61
35-35.9	1.25	48-48.9	1.64
36-36.9	1.28	49-49.9	1.67
37-37.9	1.31	50-50.9	1.70
38-38.9	1.34	51-51.9	1.73
39-39.9	1.37	52 and above	1.76

Cotton Valley, below 36, $0.75. Rest of Cotton Valley schedule, beginning with 36-36.9 at $1.28, same as Caddo, Homer, etc.

Smackover, below 24		$0.75
do	24 and above	.90
Bellevue		1.25
*Urania, La		.75
†East El Dorado		1.00

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Smackover prices posted on Feb. 7 by S. O. La. Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and The Texas Co.; on Feb. 8 by Magnolia: on Feb. 6 by La. Oil Refg. Corp.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp.

Below 28	$0.85	30-30.9	$0.91
28-28.9	0.87	31-31.9	0.93
29-29.9	0.89	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14, 1927

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia Orange, Boling and Pierce Junction. All other fields are Grades A only.

Crude Price Changes

OIL CITY, July 9.—On July 9 Joseph Seep Purchasing Agency advanced posted prices of Pennsylvania crude from 15 to 20 cents per barrel, except Keister grade, which is unchanged. Cabell, Somerset, Corning are unchanged. This is the second change on Pennsylvania grade crude this year, the first one having been a 25 cent advance on June 13.

The July 9 advance was 15 cents on Pennsylvania grade in the Bradford-Alleghany district and in Eureka Pipe Line lines; and 20 cents in National Transit and Southwest Pennsylvania Pipe Line lines and in Buckeye lines (Macksburg district).

New prices are: Bradford-Alleghany district in New York Transit and National Transit lines, $3.20; rest of Pennsylvania in National Transit and Southwest Pennsylvania lines, $3.10; Pennsylvania grade in West Virginia, in Eureka lines, $3; and Macksburg, O. district in Buckeye lines, $2.85.

Tanker Rates

NEW YORK, July 9.—Approximate tanker freight rates in the following trades are, to Continental ports, in shillings per ton of 2240 pounds, British Sterling; to American ports, cents per barrels:

	Crude &/or Fuel	Refined Oil
Calif. to U.K. or Continental ports*	26	29/
Gulf to U.K. or Continental ports*		17/6
North Atlantic to U.K. or Continental ports*	14	14/6
Calif. to North Atlantic ports (not E. of N. Y.)	53c	80-85c
**Gulf to North Atlantic ports (not E. of N. Y.)	18c	30-35c

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.

**For Venezuela loading 1c per bbl. additional. For Tampico loading, 4c per bbl. additional.

LOS ANGELES, July 6.—Charles Hall, in charge of the scouting and statistical department of the General Petroleum Corp., returned to headquarters in Los Angeles early in July after a strenuous two weeks' vacation spent in the High Sierras where men are men and women are tourists.

James O'Neill, assistant refinery superintendent, and W. McCullum, assistant superintendent of the process department, are in charge of lessons in handling fire equipment inaugurated at the Bossier City plant of the Louisiana Oil Refining Corp., across the Red river from Shreveport.

Purchasers, in All Fields (in Effect July 9)

OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A	$1.20	*Grades B	$1.15
‡Grades B (light crude):			
35-35.9	$1.37	38-38.9	$1.43
36-36.9	1.39	39-39.9	1.45
37-37.9	1.41	40 and above	1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Feb. 21, 1928)

‡Salt Creek below 29	$0.96
" " 29-29.9	1.01
" " 30-30.9	1.06
" " 31-31.9	1.11
" " 32-32.9	1.16
" " 33-33.9	1.19
" " 34-34.9	1.22
" " 35-35.9	1.25
" " 36-36.9	1.28
" " 37 and above	1.31
Elk Basin	1.33
Grass Creek light	1.33
Big Muddy	$1.25
Lance Creek	1.33
Rock Creek	1.25
Mule Creek	1.10
Rex Lake	1.10
‡Osage	1.33
‡Cat Creek, Mont.	1.33
Sunburst, Mont.	1.65
‡Hogback, N. Mex.	1.38
Artesia, N. Mex.	1.00

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Whittier La Habra	Newhall, McKittrick, Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Montebello	Coyote Hills	Santa Fe Springs	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	....	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
16-16.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
17-17.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
18-18.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
19-19.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
20-20.9	.85	.85	.85	....	.85	....	.85	.85	....	.77	.77	.76	.76	.85	.85
21-21.9	.86	.86	.85	....	.86	....	.85	.86	.85	.79	.79	.77	.77	.85	.85
22-22.9	.87	.87	.85	....	.87	....	.85	.87	.85	.81	.81	.78	.78	.85	.85
23-23.9	.88	.88	....	....	.88	....	.85	.88	.85	.83	.83	.79	.79	.85	.85
24-24.9	.89	.89	....	....	.89	$ .89	.85	.89	.85	.85	.85	.80	.80	.85	.85
25-25.9	.90	.90	....	....	.90	.90	.86	.90	.86	.87	.87	.81	.81	.86	.86
26-26.9	.92	.92	....	....	.92	.92	.87	.91	.87	.89	.89	.83	.82	.87	.87
27-27.9	.94	.94	....	....	.94	.94	.88	.92	.88	.91	.91	.85	.83	.88	.88
28-28.9	.96	.96	....	....	.96	.96	.89	.93	.89	.93	.93	.87	....	.89	.89
29-29.9	.98	....	....	....	.98	.98	.90	.94	.91	.96	.96	.89	....	.91	.91
30-30.9	1.00	....	....	....	1.00	1.00	.91	.95	.93	.99	.99	.91	....	.93	.93
31-31.9	1.03	....	....	....	....	1.03	....	....	.95	1.02	1.02	.93	....	....	.95
32-32.9	1.06	....	....	....	....	1.06	....	....	.97	1.05	1.05	.95	....	....	.97
33-33.9	....	....	....	....	....	1.09	....	....	.99	1.08	1.08	.97	....	....	.99
34-34.9	....	....	....	....	....	1.12	....	....	1.01	....	1.11	.99	....	....	1.01
35-35.9	....	....	....	....	....	1.15	....	....	1.03	....	....	1.01	....	....	1.03
36-36.9	....	....	....	....	....	1.18	....	....	1.06	....	....	....	....	....	1.06
37-37.9	....	....	....	....	....	1.21	....	....	1.09	....	....	....	....	....	1.09
38-38.9	....	....	....	....	....	1.24	....	....	1.12	....	....	....	....	....	1.12
39-39.9	....	....	....	....	....	1.27	....	....	1.15	....	....	....	....	....	1.15
40-40.9	....	....	....	....	....	1.30	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	....	....	1.33	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	....	....	1.36	....	....	....	....	....	....	....	....	....

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 23.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials **used** by refiners and compounders as effective the date shown.

Refiners' Supplies

	July 9	July 2
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.65	$1.65
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums, cwt.	$0.70-0.75	$0.70-0.75
Sal Soda wks.	$0.90	$0.90
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks., lb.	3.50-5.00	3.50-5.00
Litharge, powdered, casks, cwt.	8.75	8.75

Compounders' Supplies

	July 9	July 2
Vegetable Oils		
Linseed carloads, spot, lb.	9.90	10.20
Tanks, spot	9.10	9.40
Soya Bean, Tanks, coast, lb.	9.50-9.75	9.50-9.75
Oleic Acid		
Distilled, tanks, lb.	9.00	9.00
Distilled, bbls., lb.	9.75	9.75
Saponified, tanks, lb.	9.25	9.25
Saponified, bbls., lb.	10.00	10.00
Lard Oils		
Prime Winter Strained, lb.	16.25	16.25
Extra Winter Strained, lb.	13.00	13.00
Extra, lb.	12.50	12.50
Extra No. 1, lb.	12.25	12.25
No. 1, lb.	11.50	11.50
No. 2, lb.	11.25	11.25
Tallow oil, lb.	11.375	11.375
Neatsfoot Oil		
Pure, bbls., lb.	15.25	15.25
Extra, bbls., lb.	12.50	12.50
No. 1 bbls., lb.	11.75	11.75
Cold Pressed, lb.	18.50	18.50
Fish Oils		
Menhaden Oil		
Light Pressed, gal.	62-64	63-65
Light Pressed, tank cars, N. Y., gal.	54-56	54-56
White bleached, gal.	68-70	68-70
Yellow bleached, gal.	66-68	66-67
Whale, extra winter bleached, gal.	82	82
Naval Stores		
Steam distilled turpentine, N. Y., gal.	53	53
Steam distilled turpentine, Savannah, gal.	48	49
Gum turpentine, N. Y., gal.	57	57
Gum terpentine, f.o.b. cars Savannah, gal.	50.75	53
Wood Rosin F, N. Y., bbl.	$8.30	$8.55
Wood Rosin F, Savn'h, bbl.	$7.50	$7.70
Gum Rosin B, N. Y., bbl.	$9.15	$8.40
Gum Rosin B, f.o.b. cars Savannah, bbl.	$8.40	$7.70
Rosin oil, pure, gal.	57	56
Rosin oil, compounded, gal.	47	45
Pine Tar		
Kiln burnt, bbl.	$12.50-14.00	$12.50-14.00
Retort, bbl.	$13.50-15.50	$13.50-15.50
Alcohol		
Denatured, Formula 5, in bbls., per gal.	52-56	51-55

*Nominal.

Changes in Q.D.A. Are Expected To Help the Market

Staff Special
CHICAGO, July 7

INTEREST in the Chicago market for the week ended July 7 centered mainly around gasoline and kerosene. Changes in the Quantity Discount Agreement, elimination of the 1-cent a gallon discount for 50-gallon dumps on both gasoline and kerosene, and the reduction of the tank wagon price of kerosene, all to take effect on July 9, were factors which came in for considerable discussion.

The changes in the Q.D.A., while not radical, would, it was reported from most quarters, have a helpful influence, since it would give the jobbers more margin to work on and also do away with considerable paper work involved in giving the dump-discount. Many of the smaller jobbers had already discontinued giving these discounts and this move by the larger companies had the effect of putting things on a steadier basis.

That warm weather of the past few days would greatly increase the activity of the market next week, several of the trade predicted. Most sellers enjoyed a good demand most of the week, both for spot and on contract orders.

Gasoline prices continued to advance and 58-60 U. S. Motor gasoline was almost impossible to obtain under 8 cents as the week closed. The bulk of sales over the first half of the week were at 7.875 to 8 cents but almost all the 7.875 cent goods disappeared by June 7. Several sellers advanced their prices that day and sales of U. S. Motor were reported as high as 8.25 cents.

Higher gravity gasolines continued to advance in price along with the U. S. Motor grade. Domestic demand was only fair but export inquiries for 64-66, 375 e.p. have helped that commodity considerably, it was said.

Gasoline of 60-62, 437 e.p. moved at 8 to 8.125 cents until June 7, when practically no goods were available below 8.125 cents. The 60-62, 400 e.p. grade moved mostly at 8.125 to 8.25 cents over the first half of the week and at 8.25 cents the latter half. Most sales of 64-66, 375 e.p. gasoline were at 8.375 to 8.50 cents on July 2 and 3; at 8.375 to 8.625 cents on July 5 and 6 and were at 8.50 to 8.625 cents as the week closed.

Considerable difference of opinion was expressed on kerosenes. Several sellers reported increased demand this week, while others said the market continued lifeless. One refiner reported more kerosene sales this week than for the past six weeks. Reports of export activity in Group 3 were credited by the trade with helping the market slightly.

The bulk of sales of 41-43 w.w. kerosene were unchanged over the week, most goods going at 4.50 to 4.625 cents. Some sellers reported getting 4.75 cents for the 41-43 w.w. kerosene. Considerable discussion was caused by the elimination of the dump discount and the 1 cent tank wagon reduction but the trade agreed that these changes would have little effect on the refinery market.

The heavier oils were generally unchangd all week, both in price and demand. Encroachment of heavy Texas fuels into this territory continues to retard the local market, the trade reported. Spot buying on all grades of distillate, gas and fuel oils was quiet all week. Buying by industrial concerns for their July fuel requirements was reported good.

Straw 38-40 distillate moved mostly at 3 cents all week. Ordinary 32-36 dark gas oil moved at 2.50 cents; dark 32-36 zero at 2.625 cents and 32-36 straw zero gas oil at 2.625 to 2.75 cents throughout the week.

Fuel oil of 28-30 gravity sold at $0.85 to $0.875 throughout the week. The 24-26 fuel moved mostly at $0.70 to $0.75 and the 22-26 grade at $0.675 to $0.725. Most sales of 18-22 fuel were at unchanged prices, $0.60 to $0.70. Smackover treated fuel quotations were unchanged at $0.80 to $0.85.

Occasional periods of showers and thunderstorms are likely next week in the Standard of Indiana territory, says the Chicago weather bureau. Temperatures will be normal or above most of the week.

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Student Geologists Visit Salt Creek

CASPER, Wyo.—Twenty-four members of the Princeton University geology class stopped in Casper July 8 for a tour of the Salt Creek and Teapot dome fields. This was a regularly scheduled stop by the class which is traveling extensively as part of its scholastic course.

The Casper committee which arranged for the local part of the tour consisted of G. H. O'Donnell, Continental Oil Co., chairman; Otis L. Walker, C. D Buffett, Midwest Refining Co.; J. W. Steele, district supervisor, U. S. Geological Survey and J. A. Leary, of the C. B. & Q. Railway. Messrs. O'Donnell and Walker are Princeton alumni. The party were guests of the Midwest Refining Co. on the field trip and were entertained at luncheon at Midwest Hotel in Salt Creek.

Illinois Jobbers to Golf at Frolic

GALESBURG, Ill., July 9.—The annual summer frolic of one Illinois Petroleum Marketers Association will be at the Soengataha Country club Aug. 16.

Golf tournaments, contests, games, swimming, boating and other sports will feature the day. A special invitation is extended to the ladies. All country club facilities will be available.

Hotel reservations may be arranged for by wiring not later than Aug. 13, E R. Kennedy, Kennedy Oils, Galesburg.

BARTLESVILLE—Construction was started late in June of the Cities Service Gas Co.'s 132-mile 20-inch gas line from Wichita to Ottawa, Kans. This is an extension of the line from the Amarillo district and will carry gas from the Texas panhandle directly to Kansas and Missouri markets.

James M. Douglas, manager of the Union National Petroleum Co., at Caracas, is now on his return trip to Venezuela after a conference with field department officials of the Union Oil Co. of California at Los Angeles. The Union National is 50 per cent owned by Union of California.

Fight for Gasoline Gallonage Weakens California Market

LOS ANGELES, July 7

IN THE export market, U. S. Motor gasoline is available in tanker loads at 8 to 8.50 cents, with no actual sales reported locally, although it is possible that sales have been made in New York by representatives of California refiners. The last sale actually reported here was two cargoes of U. S. Motor at 7.75 cents for shipment to east coast by a local major company.

The export market to some extent is demoralized in that two major concerns are completing a merger, Richfield Oil is taking over Pan American Western and all details have not been worked out. Pan American had been a most important factor in the export field, and Richfield takes over Pan American refinery and gasoline stocks. It is thought this deal will be completed by the end of the week. Beginning next week, it is possible that Richfield will be in the market with plenty of gasoline for movement.

Fuel oil is very quiet except for the movement of contract stuff. Gas oil market is slow with none being offered in cargoes. Quotations are unchanged.

Sales officials of all refining companies are worried over the cut price situation in the gasoline retail market. Independent refiners can buy natural gasoline in tank car and truck loads at 5.50 to 6 cents, with some distress stuff on the market every week. Practically all of the small refiners are having no trouble in buying all natural gasoline they want at low prices. Each of these plants is securing a fair amount of crude to keep their plants busy, mostly from the new wells at Long Beach, at small premiums.

The major companies are on the defensive, with Independent refiners, especially in southern California, in the saddle. In fact, the small refiners are in a position to dominate the situation.

Gasoline is selling in southern California at prices ranging from 13.75 cents up to the official service station price of 20.50 cents, tax paid. The major companies who engaged recently in a fight for gallonage, regardless of the consequences, are now wondering how they can get out of the hole.

During the gallonage war, one to three-year contracts were made with Independent dealers at margins or differentials ranging from 5 to 8 cents under the official service station price. It had been expected that these Independent dealers would sell at the regular service station price. But many of them have been lowering their prices to meet competition.

During the gallonage fight, major companies took much business from the Independent refiners. This made the situation worse with the small refiner in a frame of mind to fight back. And the fight was on in earnest. Small refiners sold their product to anyone who wanted to buy at 12.50 cents and up, tax paid. This condition caused a fight to start between the Independent service station owners. And the situation has been growing worse. Last week, it appeared that some kind of solution of the problem was at hand, but it's anybody's battle at the close of the week and almost anything can happen.

It is rumored that the stronger refiners, big and little, are willing to contract with manufacturers of natural gasoline under time contracts at around 7 cents. If these contracts are signed up, there will be no more distress natural gasoline on the market. It is also understood that it is possible that some of the refiners may offer to pay the smaller plant operators 9 cents for their surplus gasoline, and ship the product into foreign or distant markets.

Apparently there is no disposition to lower the service station price of gasoline, and no one is predicting an increase in the price of light crude oil. The state now has 55,000 barrels daily production of refinable crude shut in, and a raise in price is hardly to be expected under these circumstances.

Los Angeles Shipped Less Oil in Year Ended June 30

LOS ANGELES, July 7.—Petroleum shipments leaving Los Angeles harbor week ended June 30 for points outside of Pacific coast trade territory totaled 1,361,100 barrels, or a daily average of 194,443 barrels, compared with 1,175,223 barrels the previous week, or a daily average of 167,889 barrels.

Shipments included 139,708 barrels of crude, 394,031 barrels of fuel, 62 229 barrels of diesel, 662,384 barrels of gasoline, 95,389 barrels of kerosene and 7,359 barrels of batching oil.

Products going to Pacific foreign points included 57,489 barrels of crude, 272,537 barrels of fuel, 62,-229 barrels of diesel, 44.964 barrels of gasoline, 95,389 barrels of kerosene and 7,359 barrels of batching oil. Atlantic domestic trade absorbed 374,114 barrels of gasoline and 82,-219 barrels of crude. Atlantic foreign points drew 121,494 barrels of fuel and 243,301 barrels of gasoline.

* * *

Shipments to points outside of Pacific coast trade territory during all of June totaled 4,741,601 barrels, or a daily average of 158,053 barrels, compared with 5,480,426 barrels in May.

Total movement included 404,249 barrels of crude, 2,044,525 barrels of fuel, 1,978,303 barrels of gasoline, 136,319 barrels of kerosene and 177,-611 barrels of diesel.

For fiscal year ending June 30, 1928, total shipments leaving Los Angeles harbor for points outside of Pacific coast trade territory reached total of 66,224,747 barrels, as compared with 68,188,450 barrels for year ending June 30, 1927.

Most Penna. Refiners Advance U. S. Motor

CLEVELAND, July 7.—J u l y brought higher U. S. Motor gasoline prices to most refiners in western Pennsylvania. Quarter cent advances were made July 2 by those who quoted 10.50 cents late in June.

Some refiners and brokers continued 10.50-cent quotations through the week. U. S. Motor was 10.50 to 11 cents, with bulk of quotations at 10.75 and 11 cents.

Quotations for higher gravity gasolines had a wide range. Some refiners advanced the first of the month while others did not change.

Kerosene quotations were down, with 45 w.w. grade quoted down to 6.125 cents late in the week.

Other goods was unchanged generally. Bright stocks continued to be scarce. Some refiners advanced steam refined stock quotations within current price range.

Edward Bloesch, Tulsa geologist, is spending the summer in Switzerland.

New Stations Building

Lima, O.—E. P. Mihlbaugh, three filling stations.

Willard, O.—Roxana Petroleum Corp., filling station.

Versailles, Mo.—Pierce Petroleum Corp., filling station.

Minneapolis, Minn.—Wallace G. Mowry, filling station.

Butler, Mo.—W. W. Trail, filling station.

Carrington, N. D.—Farmers Union Cooperative Oil Co., three bulk stations.

Rush City, Minn.—C. E. Heinberger, filling station.

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended July 7 Sales	First	High	Low	Last	Change
37⅞	27⅝	38	27½	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Apr. 30, 28	3,200	31⅜	32	30¾	31½	0
82½	35½	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	9,100	64⅜	66⅜	58¾	64⅜	+ ⅛
50¼	35	46⅞	37½	$56,000,000	$ 25	Associated Oil	50cQ	June 30, 28	60	45⅛	45⅛	45⅛	45⅛	0
131⅜	104	141	95¾	50,000,000	100	Atlantic Refining	$1Q	June 15, 28	44,300	140⅞	141⅜	135⅞	138½	— 1⅜
119	115½	118¼	116	20,000,000	100	do pfd	$1.75Q	May 1, 28	100	116	116	116	116	0
35½	20⅜	26⅞	22⅛	28,725,675	25	Barndsdall Corp. A	.....	Feb. 6, 28	4,700	21¼	22⅜	21	22	+ ⅜
32½	20½	27¼	22	799,775	25	do B	.....	Feb. 6, 28	100	21½	21½	21½	21½	+ ⅜
32⅛	20	32⅜	24	51,524,150	25	California Petroleum	25cQ	July 2, 28	600	30	31¼	30	31¼	+ 1¼
96⅜	65	94⅞	71¼	20,785,400	100	General Asphalt	.....	.....	7,500	76⅛	77½	73¼	75¼	— ⅝
144⅞	107¼	141½	114	6,792,200	100	do pfd	$1.25Q	June 1, 28	700	117½	117½	115½	116½	0
175⅜	60⅛	167	127	25,000,000	100	Houston Oil	.....	.....	7,700	137	142	132	136½	— 2
32⅜	17⅝	31⅞	21¾	(sh) 500,000	N.P.	Independent Oil & Gas	25cQ	May 7, 28	3,800	24⅜	25	24⅛	25¼	+ ⅛
12⅛	7⅝	24⅜	9	$3,280,340	$10	Indian Refining	.....	Dec. 15, 20	82,600	23⅞	38	23	37	+13½
12	7¼	24¼	8½	4,550,110	10	do ctfs	.....	.....	56,000	23⅞	35½	22⅝	34	+11½
112	99	175	101	2,296,400	10	do pfd	.....	Dec. 15, 21	2,100	174¼	225	174¼	225	+50
37¾	20½	39⅛	27¾	(sh) 3,992,122	N.P.	Lago Oil & Transport	75cQ	May 1, 28	1,000	31½	32⅞	31	32⅞	+ ⅞
18⅜	10	19¾	9⅜	(sh) 1,237,078	N.P.	Louisiana Oil Refining	.....	.....	10,800	14⅜	14½	13½	14⅜	0
97	85¼	101	80	$4,000,000	$100	do pfd	$1⅜Q	May 15, 28	10	88	88	88	88	— 6
22¾	12	25½	12⅛	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	1,900	15¾	18¾	15½	17½	+ 1½
58½	31	44½	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	28,700	35	36½	34½	36⅛	+ 1⅜
320	200	360	250	$45,942,800	$100	Mexican Petroleum	$3Q	Apr. 20, 28	.....	....	....	....	....	.....
....	....	....	....	12,000,000	100	do pfd	$2Q	Apr. 20, 28	.....	....	....	....	....	.....
9¼	3	39	4⅝	sh) 945,939	N.P.	Mexican Seaboard	.....	Nov. 15, 24	115,800	25	28⅜	22⅝	27½	+ 3⅛
39⅝	25½	33¼	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 27	7,600	28⅞	29⅜	28½	29⅜	+ ⅞
105	97	115⅛	103¼	$6,718,000	$100	do pfd	$1.75Q	June 1, 28	.....	....	....	....	....	.....
3¾	1⅜	7⅜	2⅛	24,298,850	10	Middle States	.....	July 1, 23	8,300	5	5	4⅝	4⅜	— ⅛
2¾	1⅜	5⅞	1½	5,501,370	10	do ctfs	.....	.....	1,500	3½	3¾	3½	3⅞	+ ⅜
1⅞	1	2¼	1¼	(sh) 3,500,000	N.P.	Pacific Oil	.....	.....	5,900	1¼	1⅜	1¼	1⅜	+ ⅛
65⅞	40½	53¾	38¼	$48,807,400	$ 50	Pan American P. & T.	.....	Oct. 20, 27	4,900	41	43	40½	42	— 1¼
66⅜	40¼	54⅝	37⅜	121,097,900	50	do B	.....	Oct. 20, 27	21,300	43	44¼	42⅛	43⅝	+ ⅜
37⅞	16¾	28⅜	18¼	(sh) 400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	6,000	19¼	21½	19⅛	19⅞	— 1⅛
18⅞	8	21⅜	11½	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	9,400	15¼	16	15	15⅞	+ ¼
83	54	106¼	70	$2,935,200	$100	do pfd	.....	July 2, 23	.....	....	....	....	....	.....
60¼	36¼	44⅝	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	July 2, 28	9,900	37¼	38¾	37	38½	+ ⅞
1⅜	½	4¼	½	$29,622,925	$ 25	Pierce Oil Corp.	.....	.....	6,800	2⅜	2⅞	2¼	2½	+ ⅛
24	13½	30½	16¼	15,000,000	100	do pfd	.....	Feb. 1, 22	.....	....	....	....	....	.....
5⅛	2½	6⅝	3½	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	7,400	3⅞	4⅜	3⅞	4¼	+ ⅛
33⅞	16⅜	26⅞	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	10,500	24⅞	26⅜	23⅞	26⅛	+ 1⅛
50	36⅞	46⅞	41	2,845,350	50	do pfd	.....	May 1, 25	20	45	45	45	45	0
33⅛	25	27½	19	75,959,250	25	Pure Oil Co.	12½cQ	June 1, 28	5,900	22⅝	23½	22⅛	23⅜	+ ⅝
115½	111⅝	115	108	13,000,000	100	do 8% pfd	$2Q	July 2, 28	190	113	113¼	113	113	0
28⅝	25⅛	50¾	24	$29,224,894	$25	Richfield Oil	25cQ	May 1, 28	45,000	45	47⅛	43	45⅞	+ 1
54½	44¼	55⅝	44⅝	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	$1.343	Jan. 28, 28	7,600	55⅛	56⅜	54¾	55⅝	+ 1
47⅞	41⅜	51	40⅝	(sh) 77,590	£2	Shell Transport & T	97c	Jan. 23, 28	800	49½	50	49½	50	— 1
31⅜	24⅜	31	23¼	(sh) 10,000,000	N.P.	Shell Union Oil	35cQ	June 30, 28	6,900	27⅛	27¼	26⅜	27	— ¼
26⅜	14¼	24¾	18⅛	$7,208,080	$ 10	Simms Petroleum	.....	Apr. 1, 27	3,600	20⅜	21½	20	21½	+ 1
22⅜	15	30¼	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	May 31, 24	71,000	24¼	24¾	23	24⅝	+ ⅝
104½	97	109½	102½	$16,604,600	$100	do pfd	$2Q	May 15, 28	500	105⅝	108¾	108½	108¾	+ 1⅛
37⅝	24⅛	34	25	27,396,590	25	Skelly Oil Co.	50cQ	June 15, 28	8,400	29⅞	30⅜	29½	30¼	+ ⅜
60¾	50⅝	63⅞	53	(sh) 13,016,434	N.P.	S. O. California	62½cQ	June 15, 28	10,100	57⅜	59½	57⅜	58¾	+ 1⅜
41⅜	35⅛	49	37¼	$607,910,525	$ 25	S. O. New Jersey	‡25cQ	June 15, 28	44,100	44	44¾	43¼	44½	+ ⅝
34⅛	29¾	41½	28¾	427,973,275	25	S. O. New York	40cQ	June 15, 28	62,100	35⅜	35½	34	35¼	+ ⅜
34⅞	30	49	31⅛	(sh) 1,206,073	N.P.	Sun Oil	25cQ	June 15, 28	2,100	42⅝	43⅞	42⅛	43	— ½
101⅝	99	109½	100	$5,000,000	$100	do pfd	$1.50Q	June 1, 28	100	105¼	105¼	105¼	105¼	— 2¼
6½	3⅛	9½	2⅛	(sh) 1,121,368	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	64,000	6⅞	8¼	6⅝	8	+ 1⅛
58	45	66⅝	50	$180,480,550	$ 25	The Texas Corp.	75cQ	July 2, 28	34,300	58¾	62	58½	61¾	+ 1⅝
18⅜	12	17½	12⅛	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	4,600	13⅞	14⅜	13½	14	+ ⅜
29⅛	19	27⅛	19⅝	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	June 30, 28	.....	....	....	....	....	.....
90⅛	85	94½	87	$20,705,200	$100	do 5½% pfd	$1.25Q	May 15, 28	.....	....	....	....	....	.....
19⅛	15¾	20⅝	14¾	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	15,200	16⅝	17¾	16½	17¾	+ 1⅛
90¾	85	90	82⅛	$72,745,900	$100	do pfd	$1.50Q	July 2, 28	500	86	86	85⅛	85⅛	+ ⅛
10⅜	3⅜	10⅛	7	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	37,000	7⅞	8¼	7¾	8⅛	+ ⅜
56½	39⅜	57	42¾	$40,791,225	$ 25	Union Oil of California	50cQ	May 10, 28	14,600	49⅝	53¾	49½	53	+ 3¾
127½	94	128⅛	115½	30,844,000	100	Union Tank Car Co.	$1.25Q	June 1, 28	200	118	118	115	118	+ 2½
34½	24½	37½	26	(sh) 310,956	N.P.	Warner Quinlan	90cQ	July 2, 28	21,500	35½	39	35⅜	38⅜	+ 1⅞
27½	20	26	20⅛	(sh) 490,000	N.P.	White Eagle Oil & Refining	25cQ	Apr. 20, 28	3,300	23	23	22¼	23	+ ¾

•New High †New Low ‡Also extras s-Stock Total Sales 943,888

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended July 6 Sales	First	High	Low	Last	Change
....	....	4	2½	N.P.	Ark. Nat. Gas (new)	2,732	3	3	2⅞	3	0
....	....	7½	6¾	N.P.	do pfd	3,818	7⅛	7⅜	7⅛	7⅛	0
98⅝	80⅞	114½	90¾	100	Columbia Gas	.....	....	....	....	....	.....
107⅞	100	108½	108	100	do pfd	.....	....	....	....	....	.....
15	7½	10	7	10	Devonian Oil	165	8	8	8	8	0
....	....	15	9¾	10	Dixie Gas & Util	.....	....	....	....	....	.....
....	....	95	85	100	do pfd	.....	....	....	....	....	.....
117½	115	116	115	100	Duquesne Light pfd.	.....	....	....	....	....	.....
....	....	85	80½	100	Fayette County Gas	.....	....	....	....	....	.....
12¼	6	22	12	N.P.	Houston Gulf Gas	.....	....	....	....	....	.....
59¼	37¼	58	48⅝	$ 25	Lone Star Gas	1,735	52½	52½	51½	52½	+ ½
....	....	36½	36½	25	Petroleum Exploration	.....	....	....	....	....	.....
3⅞	3	4	3¼	5	Pittsburgh Oil & Gas	.....	....	....	....	....	.....
8	5½	7¼	6	10	Salt Creek Cons	.....	....	....	....	....	.....
26½	17	22	16¾	10	Tidal Osage	.....	....	....	....	....	.....
43	33	33⅝	30½	N.P.	Waverly Oil Wks. A	.....	....	....	....	....	.....
....	....	19	18	$ 25	Wiser Oil	.....	....	....	....	....	.....

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended July 6 Sales	First	High	Low	Last	Change
....	....	10¼	9	10	Ark. Nat. Gas (old)	.....	....	....	....	....	.....
95	88	132	132	25	Gulf Oil	.....	....	....	....	....	.....
....	....	115	115	....	Houston Gulf Gas pfd.	.....	....	....	....	....	.....
10¾	5½	9	5½	25	Leonard Oil & Dev	.....	....	....	....	....	.....
2.70	.30	1.00	.50	10	Omar Oil & Gas	.....	....	....	....	....	.....
....	....	.30	.20	....	Phoenix Oil	1,000	.20	.20	.20	.20	— .10
2¼	1¾	....	....	5	Pittsburgh Oil Dev	.....	....	....	....	....	.....
31	19	22	16¾	5	Plymouth Oil	1,225	20	20⅜	20	20⅜	— ⅜
6	5	4¾	4½	5	States Oil	.....	....	....	....	....	.....
3¼	1½	4½	2¼	1	Texon Oil & Land	.....	....	....	....	....	.....
23¾	18	18	15	10	Tidal Osage Non-vgt.	.....	....	....	....	....	.....

•New High †New Low x Ex Dividend

Cleveland Stock Market

July 6	Par Value	Bid	Asked	Last Sale
Canfield	100	...	...	115
do pfd	100	...	...	100
Fred G. Clark	10	3½	5	4½
National Refining	25	36	37	36
do pfd	100	x130	135	132½
Paragon Refining Co.	25	15	16	15⅜
do pfd	100	122	130	120

x Ex Dividend.

Union Oil Buys Marketing Company

LOS ANGELES, July 6.—Associated Oil Co. has purchased the business of the Wesco Oil Co. of Spokane, Washington, which is a distributing company only for that territory. The purchase includes about 120 service stations and a large number of accounts in addition to a complete distributing system. This marks the entry of the Associated into this territory on a large scale.

Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended July 7 Sales	First	High	Low	Last	Change
21⅜	17⅞	22⅜	17	£ 4,126,460	£ 1	Anglo-American Oil	24.4c	June 6, 28	300	18⅛	18⅛	17½	18⅛	— ¼
21½	17⅝	20½	16½	.....	£ 1	do cts. non-voting	.....	.....	200	17½	17½	17½	17½	— ¼
3⅜	⅛	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	300	3	3	2⅞	2⅞	+ ⅛
6⅛	2⅛	9¾	3¼	$ 10,000,000	$ 50	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
69	50	56	49	1,000,000	25	Borne Scrymser	‡$1S.A.	Apr. 16, 28	.....	.....	.....	.....	.....	.....
60	45	76	58	10,000,000	50	Buckeye Pipe Line	‡$1Q	June 15, 28	200	67	67	67	67	+ ¼
126	76¼	161	117¼	3,000,000	25	Chesebrough Mfg	$1Q	June 30, 28	.....	.....	.....	.....	.....	.....
22¾	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	6,900	16⅜	16⅞	16¼	16½	— ¼
137	89	114	88	3,000,000	100	Cumberland Pipe Line	‡$2Q	June 15, 28	100	98¾	98¾	98¾	98¾	— 1
68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	May 1, 28	100	73	73	73	73	— ¾
13½	3½	13	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	400	10⅝	10⅝	10	10	— ½
59¾	23	85	27	4,000,000	100	do new pfd	.....	June 30, 26	1,140	81½	82½	78⅛	79¼	— 3¾
60½	35½	82¼	35	2,000,000	100	do old pfd	.....	June 30, 26	530	82¼	*82¼	78	81	— 1¼
68½	54	84¾	60	73,117,577	25	Humble Oil & Refining	‡30cQ	July 1, 28	8,600	78	80⅞	76¾	79	+ 4½
182	123¾	245	176½	20,000,000	100	Illinois Pipe Line	$6S.A.	June 15, 28	910	212	213½	210½	210½	+ 1½
64¾	37¾	71⅞	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	‡25cQ	June 1, 28	3,500	67½	69½	66	69	+ 2
94½	61	89½	74⅞	$5,000,000	$ 50	Indiana Pipe Line	‡$1Q	June 15, 28	400	85½	86½	85½	86½	+ 6½
39	28¼	45¼	35	(sh) 17,123,444	N.P.	International Petroleum	25c	June 30, 28	5,500	39	41⅛	38⅛	40¾	+ 1¾
24	13¾	32⅜	19⅜	$6,363,350	12.50	National Transit Co	‡25cQ	June 15, 28	500	21	21⅜	21⅛	21⅜	+ ⅜
44¾	31¾	59⅛	37½	5,000,000	100	New York Transit	.....	July 15, 26	50	54¼	54¼	54¼	54¼	— 2¾
100	70	125	94	4,000,000	100	Northern Pipe Line	$3S.A.	July 2, 28	150	112¾	112¾	112½	112½	0
67⅞	52	68¼	58	60,000,000	25	Ohio Oil Co	‡50cQ	June 15, 28	2,600	62¾	63	62	62⅝	+ ⅛
39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	May 31, 28	500	40	40	38¼	38¼	— 1⅝
190	132	223	184	81,000,000	100	Prairie Pipe Line	$2.50Q	Apr. 30, 28	850	207¾	210	206½	208½	+ 1½
55½	45⅝	56	47⅜	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	3,800	48¾	48⅞	48¼	48⅞	+ ⅜
201¾	175½	186	167	4,000,000	100	Solar Refining	$5S.A.	June 20, 28	.....	.....	.....	.....	.....	.....
27¾	15¾	35⅞	21	5,000,000	50	Southern Pipe Line	$2	Dec. 1, 27	.....	.....	.....	.....	.....	.....
41⅜	35	53	36¾	2,000,000	25	South Penn Oil	50cQ	Mar. 31, 28	200	45	45	45	45	0
83	55½	100¾	70	3,500,000	100	South West Pa. Pipe Lines	‡$1Q	July 2, 28	.....	.....	.....	.....	.....	.....
81½	64⅝	83⅜	70⅞	228,415,463	25	S. O. Indiana	‡62½cQ	June 15, 28	8,600	74¾	75⅜	73¾	75⅜	+ 1⅛
20⅜	14⅜	27¾	15	8,000,000	25	S. O. Kansas	.....	June 16, 24	1,700	22¼	22½	21¾	22½	+ ¼
130	111½	136½	122¼	17,012,559	25	S. O. Kentucky	$1Q	June 30, 28	1,600	126	127¼	125	127	+ 1
49½	40	45⅞	39⅜	4,559,850	25	S. O. Nebraska	62cQ	June 20, 28	300	41½	41½	41¼	41½	0
87½	72	79½	71	14,000,000	25	S. O. Ohio	62½cQ	Apr. 2, 28	500	72½	73	72¼	73	+ ½
122	117¼	125	117	7,000,000	100	do pfd	$1.75Q	June 1, 28	50	119¾	119¾	119¾	119¾	+ ¾
21	14½	26	16	30,734,000	25	Swan Finch Co	.....	Nov. 1, 19	.....	.....	.....	.....	.....	.....
.....	.....	87⅛	72	124,941,600	25	Vacuum Oil	75cQ	June 20, 28	6,700	74½	76½	73½	76¼	+ 1⅞

•New high †New low xEx dividend ‡Also extras.

New York Curb Bonds

Week Ending July 6

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	102	102	102	+ ½
Cities Service 5s '66	96⅛	96	96	— ⅜
Cities Service 6s '66	103⅞	103¾	103¾	0
Cities Service C 5½s '42	94½	94	94¼	— ⅛
Cont. Oil 5¼s '37	96¾	96½	96¾	+ ⅛
Empire O & R 5½s '42	94	93½	93¾	+ ⅛
Galena Oil 7s '30	98⅛	97½	97½	—1
Gulf Oil 5s '37	100½	100	100	0
Gulf Oil 5s '47	100	99⅛	99½	— ⅛
Independent Oil 6s '39	100	99¾	100	+ ⅛
Richfield Oil 6s '41	131	127	131	+8
Richfield Oil 5½s '31	100	100	100	0
Sun Oil 5½s '39	101½	101⅛	101½	+ ⅛
Trans. Cont. Oil 7s '30	105½	105¼	105⅜	+ ⅛
Valvoline Oil 7s '37	108	107	107	+1⅛
Warner Quinlan 6s '42	109½	108	109	0

New York Bonds

Week Ending July 6

	High	Low	Last	Ch'ge
Assoc. Oil Gold 6s	102½	102½	102½	0
Atlantic Refg. deb. 5s	101¼	100	100	— ⅜
Barnsdall Corp. 6s	101¾	100⅞	101¼	+ ⅛
Barnsdall Corp. 8s ex-war.	92	91½	91½	— ½
Cal. Pet. 5s	100	98¾	99¼	— ½
Cal. Pet. 5½s	102	101½	101¾	+ ¼
General Asphalt 6s	108½	108	108½	+1
General Petroleum 5s	101½	101¼	101⅜	+ ⅛
Humble Oil & Refg. 5½s	102½	101⅞	102½	+ ⅝
Humble Oil & Refg. 5s	100¼	100	100¼	+ ¼
Mid-Cont. Pet. 6½s	106	105¼	106	+ ½
Pan Amer. P & T 7s	104¾	104¾	104¾	— ⅛
Pan Amer. P & T 6s	95½	95	95½	— ½
Pan Amer. P & T 6s	103	103	103	0
Prod. & Refg. 8s	110¾	110¾	110¾	0
Pure Oil 5½s	99	98⅛	99	+ ½
Shell Union Oil 5s	97½	96⅞	97¼	— ¼
Simms Pet. 6s	102	101½	101½	— ½
Sinclair Con Oil 7s	102½	101	102	+ ⅝
Sinclair Con Oil 6½s	99¾	99⅛	99⅛	— ⅛
Sinclair Con Oil 6s D	98¾	98¼	98½	0
Sinclair Con Crude 5½s	97¾	97½	97¾	0
Sinclair Pipeline	95	94¼	94⅝	+ ⅛
Skelly Oil 5½s	93⅝	93½	93⅝	+ ⅛
S. O. N. Y. 4½s	96⅞	95⅛	96½	+ ¼
S. O. N. J. deb 5s	103¼	102⅝	103	+ ⅜
Union Oil of Calif. 5s C	99½	99½	99½	+ ½
White Eagle Oil 5½s	96½	96½	96½	0

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended July 7 Sales	First	High	Low	Last	Change
2 1/16	.55	1½	.75	$ 5	Amer. Con. Oilfields	9,600	83	85	80	82	— 1
7½	2¾	6⅝	3⅛	N.P.	Amer. Maracaibo	1,800	4½	4⅝	4⅛	4⅝	+ ⅛
2¾	1	4	2¼	$ 10	Argo Oil	300	3	3	3	3	+ ½
9¾	6¾	10¼	7⅜	10	Arkansas Nat. Gas	.....	.....	.....	.....	.....	.....
20½	15½	.....	.....	N.P.	Beacon Oil	.....	.....	.....	.....	.....	.....
40	20½	40½	32¾	N.P.	British American	.....	.....	.....	.....	.....	.....
28¼	15½	23⅞	16½	25c	Carib Syndicate(new)	2,600	17¾	18½	17½	18	+ ¼
26	15⅝	.....	.....	.....	do ctfs. of deposit	.....	.....	.....	.....	.....	.....
58¾	40¼	71¼	54	$ 20	Cities Service	15,800	66¾	67⅝	66¼	67⅛	+ ⅛
95⅜	87	103½	94½	100	do pfd	1,600	100	100¾	100	100¾	+ ¾
8⅞	7⅜	9⅝	8⅞	10	do pfd. B	400	9½	9½	9½	9½	0
29¼	22½	34⅝	28¼	10	do banker's shares	.....	.....	.....	.....	.....	.....
3⅞	1⅜	2¼	1⅛	1	Colombia Syndicate	1,800	1⅛	1½	1⅜	1⅜	0
9¾	6¾	8⅛	6⅛	10	Consolidated Royal	.....	.....	.....	.....	.....	.....
14⅞	9½	17½	10	N.P.	Creole Syndicate	12,800	14⅛	14¼	13¼	13⅞	— ⅜
3	.50	3¼	.76	N.P.	Crown Central	600	2¼	2⅜	2	2	— ⅜
12	4	30⅛	8⅛	N.P.	Darby Petroleum	5,900	21⅞	24½	21½	24½	+ 2⅜
11½	4	13½	7⅞	....	do trust ctfs	.....	.....	.....	.....	.....	.....
2½	.74	22	1	N.P.	Derby Oil & Refining	.....	.....	.....	.....	.....	.....
16¾	4	11⅛	7½	N.P.	do pfd	100	11⅛	11⅛	11⅛	11⅛	0
3¾	1	2	1	N.P.	Gibson Oil	3,300	1⅛	1¼	1	1⅛	— ⅜
2	.40	.53	.15	N.P.	Gilliland ctfs	.....	.....	.....	.....	.....	.....
118	86¼	148½	101⅛	$ 25	Gulf Oil Corp	1,300	124½	132	122⅛	130⅞	+ 5⅞
2¼	.80	7⅞	1	10	Intercontinent Pet	7,200	1⅛	1¼	1	1⅛	0
2¼	1⅜	3	1¼	N.P.	Kirby Petroleum	100	1⅜	1⅜	1⅜	1⅜	0
10⅜	5⅛	9⅜	5½	N.P.	Leonard Oil & Dev	1,600	6⅜	6⅝	6½	6½	— ⅛
27½	20	32⅜	20	N.P.	Lion Oil & Refg	1,100	27½	28½	27½	28½	+ 1½
59⅜	37	57	48⅝	$ 25	Lone Star Gas	1,300	52	52½	52	52½	— ⅜
2⅞	.80	1⅞	.91	1	Magdalena Synd	6,900	1	1⅛	1	1	— ⅛
21½	20⅞	22⅛	22⅛	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	36½	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
3	1½	40½	40½	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	8	4¼	N.P.	Mexico-Ohio Oil	100	5⅞	5⅞	5⅞	5⅞	+ ⅜
1½	1	1¼	.76	$ 1	Mountain & Gulf	100	81	81	81	81	0
29¼	22¾	28⅝	22⅝	10	Mountain Producers	3,100	22¾	23	†22⅝	22¾	0
5⅞	4⅜	5⅝	4¾	5	New Bradford	100	4⅞	4⅞	4⅞	4⅞	+ ⅛
6¼	4	5½	4	10	New England Fuel	.....	.....	.....	.....	.....	.....
16	9¼	11⅜	7½	1	New Mex. & Ariz	500	8½	8½	8	8	— ½
13⅞	9	15⅛	11½	25	New York Oil	.....	.....	.....	.....	.....	.....
12¾	9½	13¼	10¾	N.P.	North Cent. Texas	1,300	12⅝	12¾	12¼	12½	— ⅛
23⅞	21¼	...	...	...	Okla. Nat. Gas ctfs.	.....	.....	.....	.....	.....	.....
9⅜	3¼	6	2½	N.P.	Pandem	1,800	2¾	2¾	2⅝	2⅝	0
12⅛	7	15¼	8½	N.P.	Panapec Oil	6,200	10½	10⅝	10¼	10⅜	+ ⅜
9	7⅝	15½	10⅜	$ 25	Paragon Refg	200	15½	*15½	15	15	0
.37	.25	9	4	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
13½	5⅛	7¾	5⅛	10	Pennok Oil	400	6	6	5⅛	5⅛	— ⅜
...	...	4½	3⅛	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
24⅜	7	14½	8	25	Red Bank Oil	.....	.....	.....	.....	.....	.....
15½	3½	12⅛	4⅛	N.P.	Reiter-Foster	5,400	7¾	8	7¾	8	+ ⅛
28⅝	15	31½	22	$ 25	Richfield Oil pfd	200	23½	23½	23½	23½	0
7	4½	9⅛	4⅝	N.P.	Ryan Consolidated	3,700	6½	6½	6	6	— ¼
8	5¼	7¼	5¾	$ 10	Salt Creek Cons	300	6¼	6¼	6¼	6¼	+ ½
35½	27¼	35	27	10	Salt Creek Prod	3,700	27	28½	27	28⅜	+ ⅜
7	1¼	3½	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
26½	17	22⅞	13	10	Tidal Osage	1,100	17⅝	18½	17⅝	18½	+ ⅞
23¾	15	21¼	13½	10	do non-voting	1,600	17⅝	18⅝	17⅝	18⅝	+ ¾
92	63½	87	82	100	Transcontinental pfd	.....	.....	.....	.....	.....	.....
23¼	7	50	18	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
7⅜	4¼	6⅝	4⅞	5	Venezuelan Petrol	600	5¼	5¼	5¼	5¼	+ ⅛
32⅜	19½	25	18⅞	N.P.	Wilcox Oil & Gas	200	19½	19½	19½	19½	— ⅛
8	4¾	8¼	5¾	$ 1	Woodley Petroleum	1,200	6½	6½	6⅛	6½	— ⅛
6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	300	5⅛	5⅛	5⅛	5⅛	0

•New High †New Low xEx Dividend

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended July 7 Sales	First	High	Low	Last	Change
37⅛	27⅝	38	27⅛	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Apr. 30, 28	3,200	31⅜	32	30¾	31½	0
82½	35⅛	85	51¾	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	9,100	64⅜	66⅜	58¾	64⅜	+ ¼
50¼	35	46⅞	37½	$56,000,000	$ 25	Associated Oil	50cQ	June 30, 28	60	45⅛	45⅛	45⅛	45⅛	0
131⅜	104	141	95¾	50,000,000	100	Atlantic Refining	$1Q	June 15, 28	44,300	140⅞	141⅜	135⅞	138½	— 1⅜
119	115½	118½	116	20,000,000	100	do pfd.	$1.75Q	May 1, 28	100	116	116	116	116	0
35½	20¾	26⅞	22¼	28,725,675	25	Barnsdall Corp. A	.....	Feb. 6, 28	4,700	21⅛	22⅜	21	22	+ ¾
32½	20½	27¼	22	799,775	25	do B	.....	Feb. 6, 28	100	21½	21½	21½	21½	+ ¾
32⅞	20	32⅜	24	$1,524,150	25	California Petroleum	25cQ	July 2, 28	600	30	31¼	30	31¼	+ 1¼
96¾	65	94½	71¾	20,785,400	100	General Asphalt	.....	.....	7,500	76½	77½	73½	75¼	— ⅝
144⅞	107¼	141½	114	6,792,200	100	do pfd.	$1.25Q	June 1, 28	700	117½	117½	115½	116½	0
175¾	60½	167	127	25,000,000	100	Houston Oil	.....	.....	7,700	137	142	132	136½	— 2
32¾	17⅝	31⅞	21¾	(sh) 500,000	N.P.	Independent Oil & Gas	25cQ	May 7, 28	3,800	24¾	25	24⅛	25¼	+ ¼
12½	7⅜	24⅜	9	$3,280,340	$10	Indian Refining	.....	Dec. 15, 20	82,600	23⅞	38	23	37	+13⅛
12	7¼	24¼	8¾	4,550,110	10	do ctfs.	.....	.....	56,000	23⅞	35½	22⅝	34	+11½
112	99	175	101	2,296,400	10	do pfd.	.....	Dec. 15, 21	2,100	174¼	225	174¼	225	+50
37¾	20½	39½	27¾	(sh) 3,992,122	N.P.	Lago Oil & Transport	75cQ	May 1, 28	1,000	31½	32⅞	31	32⅞	+ ⅞
18⅛	10	19¾	9⅜	(sh) 1,237,078	N.P.	Louisiana Oil Refining	.....	.....	10,800	14⅜	14½	13½	14⅜	0
97	85¼	101	80	$4,000,000	$100	do pfd.	$1⅜Q	May 15, 28	10	88	88	88	88	— 6
22¾	12	25½	12⅜	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	1,900	15¾	18¾	15½	17½	+ 1½
58½	31	44½	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	28,700	35	36½	34½	36⅛	+ 1⅛
320	200	360	250	$45,942,800	$100	Mexican Petroleum	$3Q	Apr. 20, 28	.....	.....	.....	.....	.....	.....
....	....	....	....	12,000,000	100	do pfd.	$2Q	Apr. 20, 28	.....	.....	.....	.....	.....	.....
9¼	3	39	4⅝	sh) 945,939	N.P.	Mexican Seaboard	.....	Nov. 15, 24	115,800	25	28⅝	22⅝	27½	+ 3½
39⅜	25½	33¼	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 27	7,600	28⅞	29⅜	28½	29⅜	+ ⅞
105	97	115¼	103¼	$6,718,000	$100	do pfd.	$1.75Q	June 1, 28	.....	.....	.....	.....	.....	.....
3⅜	1⅜	7⅜	2¾	24,298,850	10	Middle States	.....	July 1, 23	8,300	5	5	4⅝	4⅜	— ⅛
2¾	1¾	5⅞	1½	5,501,370	10	do ctfs.	.....	.....	1,500	3½	3⅞	3½	3⅞	+ ⅜
1⅞	1	2¼	1¼	(sh) 3,500,000	N.P.	Pacific Oil	.....	.....	5,900	1¼	1⅜	1¼	1⅜	+ ⅛
65⅞	40⅛	53⅜	38¼	$48,807,400	$ 50	Pan American P. & T.	.....	Oct. 20, 27	4,900	41	43	40½	42	— ¼
66¾	40½	54⅝	37⅝	121,097,900	50	do B	.....	Oct. 20, 27	21,300	43	44¼	42⅛	43⅝	+ ¾
37⅞	16¾	28⅜	18¼	(sh) 400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	6,000	19¼	21½	19⅛	19⅞	— 1⅛
18⅞	8	21¾	11⅜	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	9,400	15¼	16	15	15⅞	+ ¼
83	54	106¼	70	$2,935,200	$100	do pfd.	.....	July 2, 23	.....	.....	.....	.....	.....	.....
60¼	36¼	44⅝	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	July 2, 28	9,900	37¼	38¾	37	38⅛	+ ⅞
1⅜	½	4¼	⅜	$29,622,925	$ 25	Pierce Oil Corp.	.....	.....	6,800	2⅜	2⅞	2¼	2½	+ ⅛
24	13½	30½	16¼	15,000,000	100	do pfd.	.....	Feb. 1, 22	.....	.....	.....	.....	.....	.....
5¼	2½	6⅝	3½	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	7,400	3⅞	4⅜	3⅞	4¼	+ ¼
33⅛	16⅝	26⅞	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	10,500	24⅞	26⅜	23⅞	26⅛	+ 1⅛
50	36⅛	46⅞	41	2,845,350	50	do pfd.	.....	May 1, 25	20	45	45	45	45	0
33⅛	25	27½	19	75,959,250	25	Pure Oil Co.	12½cQ	June 1, 28	5,900	22⅝	23½	22⅛	23⅜	+ ⅝
115½	111⅝	115	108	13,000,000	100	do 8% pfd.	$2Q	July 2, 28	190	113	113⅜	113	113	0
28⅝	25⅛	50¾	24	$29,224,894	$25	Richfield Oil	25cQ	May 1, 28	45,000	45	47⅛	43	45¾	+ 1
54½	44¼	55⅝	44⅝	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	$1.343	Jan. 28, 28	7,600	55⅛	56⅜	54¾	55⅝	+ 1
47⅞	41¾	51	40¾	(sh) 77,590	£2	Shell Transport & T.	97c	Jan. 23, 28	800	49½	50	49½	50	— 1
31¾	24⅝	31	23¼	(sh)10,000,000	N.P.	Shell Union Oil	35cQ	June 30, 28	6,900	27⅛	27¼	26⅜	27	— ¼
26⅜	14¼	24¾	18⅛	$7,208,080	$ 10	Simms Petroleum	.....	Apr. 1, 27	3,600	20½	21½	20	21½	+ 1
22⅜	15	30¼	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	May 31, 24	71,000	24¼	24¾	23	24⅝	+ ⅝
104½	97	109½	102½	$16,604,600	$100	do pfd.	$2Q	May 15, 28	500	105⅝	108¾	108½	108¾	+ 1⅛
37⅛	24⅛	34	25	27,396,590	25	Skelly Oil Co.	50cQ	June 15, 28	8,400	29⅞	30⅜	29½	30¼	+ ⅜
60¾	50¾	63⅞	53	(sh)13,016,434	N.P.	S. O. California	62½cQ	June 15, 28	10,100	57⅜	59½	57½	58¾	+ 1⅛
41⅜	35⅛	49	37⅜	$607,910,525	$ 25	S. O. New Jersey	‡25cQ	June 15, 28	44,100	44	44¾	43¼	44½	+ ⅝
34⅛	29⅜	41½	28⅜	427,973,275	25	S. O. New York	40cQ	June 15, 28	62,100	35⅜	35½	34	35¼	+ ⅜
34⅞	30	49	31½	(sh) 1,206,073	N.P.	Sun Oil	25cQ	June 15, 28	2,100	42⅝	43⅛	42⅛	43	— ½
101⅝	99	109½	100	$5,000,000	$100	do pfd.	$1.50Q	June 1, 28	100	105¼	105¼	105¼	105¼	— 2¼
6½	3⅛	9½	2¾	(sh) 1,121,368	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	64,000	6⅞	8¼	6⅝	8	+ 1⅛
58	45	66½	50	$180,480,550	$ 25	The Texas Corp.	75cQ	July 2, 28	34,300	58¾	62	58½	61⅝	+ 1⅝
18⅛	12	17½	12½	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	4,600	13⅞	14⅜	13½	14	+ ⅛
29¼	19	27¼	19⅝	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	June 30, 28	.....	.....	.....	.....	.....	.....
90½	85	94½	87	$20,705,200	$100	do 5½% pfd.	$1.25Q	May 15, 28	.....	.....	.....	.....	.....	.....
19½	15¾	20⅝	14¾	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	15,200	16⅝	17¾	16½	17¾	+ 1¼
90¾	85	90	82½	$72,745,900	$100	do pfd.	$1.50Q	July 2, 28	500	86	86	85½	85½	+ ⅛
10⅝	3¾	10⅜	7	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	37,000	7⅞	8¼	7⅞	8⅛	+ ⅜
56½	39⅝	57	42¼	$40,791,225	$ 25	Union Oil of California	50cQ	May 10, 28	14,600	49⅝	53¾	49½	53	+ 3¾
127½	94	128⅛	115½	30,844,000	100	Union Tank Car Co.	$1.25Q	June 1, 28	200	118	118	115	118	+ 2½
34½	24⅛	37½	26	(sh) 310,956	N.P.	Warner Quinlan	50cQ	July 2, 28	21,500	35½	39	35⅜	38⅜	+ 1⅞
27½	20	26	20⅝	(sh) 490,000	N.P.	White Eagle Oil & Refining	25cQ	Apr. 20, 28	3,300	23	23	22¼	23	+ ¾

*New High †New Low ‡Also extras s-Stock Total Sales 943,888

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended July 6 Sales	First	High	Low	Last	Change
....	....	4	2⅛	N.P.	Ark. Nat. Gas (new)	2,732	3	3	2¾	3	0
....	....	7½	6¾	N.P.	do pfd.	3,818	7⅛	7⅛	7⅛	7⅛	0
98⅝	80⅞	114½	90¾	100	Columbia Gas	.....	.....	.....	.....	.....	.....
107⅞	100	108½	108	100	do pfd.	.....	.....	.....	.....	.....	.....
15	7½	10	7	10	Devonian Oil	165	8	8	8	8	0
....	....	15	9¾	10	Dixie Gas & Util.	.....	.....	.....	.....	.....	.....
....	....	95	85	100	do pfd.	.....	.....	.....	.....	.....	.....
117½	115	116	115	100	Duquesne Light pfd.	.....	.....	.....	.....	.....	.....
....	....	85	80½	100	Fayette County Gas.	.....	.....	.....	.....	.....	.....
12¼	6	22	12	N.P.	Houston Gulf Gas	.....	.....	.....	.....	.....	.....
59¼	37¼	58	48⅝	$ 25	Lone Star Gas	1,735	52½	52½	51½	52½	+ ½
....	....	36½	36½	25	Petroleum Exploration	.....	.....	.....	.....	.....	.....
3⅞	3	4	3¼	5	Pittsburgh Oil & Gas.	.....	.....	.....	.....	.....	.....
8	5½	7¼	6	10	Salt Creek Cons.	.....	.....	.....	.....	.....	.....
26½	17	22	16¾	10	Tidal Osage	.....	.....	.....	.....	.....	.....
43	33	33⅝	30½	N.P.	Waverly Oil Wks. A	.....	.....	.....	.....	.....	.....
....	....	19	18	$ 25	Wiser Oil	.....	.....	.....	.....	.....	.....

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended July 6 Sales	First	High	Low	Last	Change
....	....	10¼	9	10	Ark. Nat. Gas (old)	.....	....	....	....	....	.....
95	88	132	132	25	Gulf Oil	.....	....	....	....	....	.....
....	....	115	115	....	Houston Gulf Gas pfd.	.....	....	....	....	....	.....
10¾	5½	9	5½	25	Leonard Oil & Dev.	.....	....	....	....	....	.....
2.70	.30	1.00	.50	10	Omar Oil & Gas	.....	....	....	....	....	.....
....	....	.30	.20	....	Phoenix Oil	1,000	.20	.20	.20	.20	— .10
2¼	1¾	....	....	5	Pittsburgh Oil Dev.	.....	....	....	....	....	.....
31	19	22	16¾	5	Plymouth Oil	1,225	20	20⅜	20	20⅜	— ⅜
6	5	4¾	4½	5	States Oil	.....	....	....	....	....	.....
3⅛	1½	4½	2¼	1	Texon Oil & Land	.....	....	....	....	....	.....
23¾	18	18	15	10	Tidal Osage Non-vgt.	.....	....	....	....	....	.....

*New High †New Low x Ex Dividend

Cleveland Stock Market

July 6	Par Value	Bid	Asked	Last Sale
Canfield	100	...	...	115
do pfd.	100	...	...	100
Fred G. Clark	10	3½	5	4½
National Refining	25	36	37	36
do pfd.	100	x130	135	132½
Paragon Refining Co.	25	15	16	15⅜
do pfd.	100	122	130	120

x Ex Dividend.

Union Oil Buys Marketing Company

LOS ANGELES, July 6.—Associated Oil Co. has purchased the business of the Wesco Oil Co. of Spokane, Washington, which is a distributing company only for that territory. The purchase includes about 120 service stations and a large number of accounts in addition to a complete distributing system. This marks the entry of the Associated into this territory on a large scale.

Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended July 7 Sales	First	High	Low	Last	Change
21⅝	17⅛	22¾	17	£ 4,126,460	£ 1	Anglo-American Oil	24.4c	June 6, 28	300	18⅛	18⅛	17½	18¼	— ¼
21½	17⅝	20½	16½	.....	£ 1	do cts. non-voting	.....	.....	200	17½	17½	17½	17½	— ¼
3¾	⅝	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	300	3	3	2⅞	2⅞	+ ⅛
6½	2¾	9¾	3¼	$ 10,000,000	$ 50	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
69	50	56	49	1,000,000	25	Borne Scrymser	‡$1S.A.	Apr. 16, 28	.....	.....	.....	.....	.....	.....
60	45	76	58	10,000,000	50	Buckeye Pipe Line	‡$1Q	June 15, 28	200	67	67	67	67	+ ¼
126	76½	161	117¼	3,000,000	25	Chesebrough Mfg	$1Q	June 30, 28	.....	.....	.....	.....	.....	.....
22⅝	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	6,900	16¾	16⅞	16¼	16½	— ¼
137	89	114	88	3,000,000	100	Cumberland Pipe Line	‡$2Q	June 15, 28	100	98¾	98¾	98¾	98¾	— 1
68½	47	88	64½	5,000,000	100	Eureka Pipe Line	$1Q	May 1, 28	100	73	73	73	73	— ¾
13½	3¾	13	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	400	10⅝	10⅝	10	10	— ½
59¾	23	85	27	4,000,000	100	do new pfd	.....	June 30, 26	1,140	81½	82½	78⅛	79¼	— 3⅜
60½	35½	82¼	35	2,000,000	100	do old pfd	.....	June 30, 26	530	82¼	*82¼	78	81	— 1¼
68½	54	84¾	60	73,117,577	25	Humble Oil & Refining	‡30cQ	July 1, 28	8,600	78	80⅞	76¾	79	+ 4½
182	123¾	245	176½	20,000,000	100	Illinois Pipe Line	$6S.A.	June 15, 28	910	212	213½	210½	210½	+ 1½
64¾	37¾	71⅞	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	‡25cQ	June 1, 28	3,500	67½	69½	66	69	+ 2
94½	61	89½	74½	$5,000,000	$ 50	Indiana Pipe Line	‡$1Q	June 15, 28	400	85½	86½	85½	86½	+ 6½
39	28¾	45¼	35	(sh) 17,123,444	N.P	International Petroleum	25c	June 30, 28	5,500	39	41⅛	38¼	40⅝	+ 1¾
24	13¾	32⅜	19⅜	$6,363,350	12.50	National Transit Co	‡25cQ	June 15, 28	500	21	21⅜	21⅛	21⅜	+ ⅜
44⅛	31¾	59⅛	37¾	5,000,000	100	New York Transit	.....	July 15, 26	50	54¼	54¼	54¼	54¼	— 2¾
100	70	125	94	4,000,000	100	Northern Pipe Line	$3S.A.	July 2, 28	150	112¾	112¾	112½	112½	0
67¼	52	68¼	58	60,000,000	25	Ohio Oil Co	‡50cQ	June 15, 28	2,600	62¾	63	62	62⅝	+ ⅛
39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	May 31, 28	500	40	40	38¼	38¼	— 1⅝
190	132	223	184	81,000,000	100	Prairie Pipe Line	$2.50Q	Apr. 30, 28	850	207¾	210	206½	208½	+ 1½
55⅜	45¾	56	47⅜	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	3,800	48¾	48⅞	48¼	48⅞	+ ⅛
201½	175½	186	167	4,000,000	100	Solar Refining	$5S.A.	June 20, 28	.....	.....	.....	.....	.....	.....
27¼	15½	35⅞	21	5,000,000	50	Southern Pipe Line	$2	Dec. 1, 27	.....	.....	.....	.....	.....	.....
41½	35	53	36¾	2,000,000	25	South Penn Oil	50cQ	Mar. 31, 28	200	45	45	45	45	0
83	55½	100⅜	70	3,500,000	100	South West Pa. Pipe Lines	‡$1Q	July 2, 28	.....	.....	.....	.....	.....	.....
81⅛	64⅝	83⅜	70⅞	228,415,463	25	S. O. Indiana	‡62½cQ	June 15, 28	8,600	74¾	75⅜	73¾	75⅜	+ 1⅛
20⅞	14¾	27¾	15	8,000,000	25	S. O. Kansas	.....	June 16, 24	1,700	22¼	22½	21¾	22½	+ ¾
130	111½	136½	122¼	17,012,559	25	S. O. Kentucky	$1Q	June 30, 28	1,600	126	127¼	125	127	+ 1
49½	40	45⅞	39¼	4,559,850	25	S. O. Nebraska	62cQ	June 20, 28	300	41½	41½	41¼	41½	0
87½	72	79½	71	14,000,000	25	S. O. Ohio	62½cQ	Apr. 2, 28	500	72½	73	72¼	73	+ ½
122	117¼	125	117	7,000,000	100	do pfd	$1.75Q	June 1, 28	50	119¾	119¾	119¾	119¾	+ ¾
21	14½	26	16	30,734,000	25	Swan Finch Co	.....	Nov. 1, 19	.....	.....	.....	.....	.....	.....
.....	.....	87⅛	72	124,941,600	25	Vacuum Oil	75cQ	June 20, 28	6,700	74½	76½	73½	76¼	+ 1⅞

*New high †New low xEx dividend ‡Also extras.

New York Curb Bonds

Week Ending July 6

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	102	102	102	+ ⅛
Cities Service 5s '66	96⅛	96	96	— ⅜
Cities Service 6s '66	103⅞	103¾	103¾	0
Cities Service C 5½s '42	94½	94	94¼	— ⅛
Cont. Oil 5¼s '37	96¾	96½	96¾	+ ⅛
Empire O & R 5½s '42	94	93½	93¾	+ ⅛
Galena Oil 7s '30	98½	97½	97½	—1
Gulf Oil 5s '37	100½	100	100	0
Gulf Oil 5s '47	100	99½	99½	— ⅛
Independent Oil 6s '39	100	99¾	100	+ ⅛
Richfield Oil 6s '41	131	127	131	+8
Richfield Oil 5½s '31	100	100	100	0
Sun Oil 5½s '39	101⅛	101⅛	101⅛	+ ⅛
Trans. Cont. Oil 7s '30	105½	105¼	105⅜	+ ⅛
Valvoline Oil 7s '37	108	107	107	+1¼
Warner Quinlan 6s '42	109½	108	109	0

New York Bonds

Week Ending July 6

	High	Low	Last	Ch'ge
Assoc. Oil Gold 6s	102½	102½	102½	0
Atlantic Refg. deb. 5s	101¼	100	100	— ⅛
Barnsdall Corp. 6s	101¾	100⅞	101⅛	+ ⅛
Barnsdall Corp. 8s ex-war.	92	91½	91½	— ½
Cal. Pet. 5s	100	98⅜	99¼	— ½
Cal. Pet. 5½s	102	101½	101¾	+ ¼
General Asphalt 6s	108½	108	108½	+1
General Petroleum 5s	101½	101⅛	101⅜	+ ⅛
Humble Oil & Refg. 5½s	102½	101⅞	102⅛	+ ⅛
Humble Oil & Refg. 5s	100¼	100	100¼	+ ¼
Mid-Cont. Pet. 6½s	106	105¼	106	+ ½
Pan Amer. P & T 7s	104¾	104¾	104¾	— ½
Pan Amer. P & T 6s	95½	95	95½	— ½
Pan Amer. P & T 6s	103	103	103	0
Prod. & Refg. 8s	110¾	110¾	110¾	0
Pure Oil 5½s	99	98½	99	+ ½
Shell Union Oil 5s	97½	96⅞	97¼	— ¼
Simms Pet. 6s	102	101½	101½	— ½
Sinclair Con Oil 7s	102½	101	102	+ ⅝
Sinclair Con Oil 6½s	99¾	99⅛	99⅛	— ⅛
Sinclair Con Oil 6s D	98¾	98¼	98½	0
Sinclair Con Crude 5½s	97¾	97½	97¾	0
Sinclair Pipeline	95	94¼	94⅝	+ ⅛
Skelly Oil 5½s	93⅝	93½	93⅝	+ ⅛
S. O. N. Y. 4½s	96⅞	95⅞	96½	+ ¼
S. O. N. J. deb 5s	103¼	102⅝	103	+ ⅜
Union Oil of Calif. 5s C	99½	99½	99½	+ ½
White Eagle Oil 5½s	96½	96½	96½	0

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended July 7 Sales	First	High	Low	Last	Change
2⅛	.55	1½	.75	$ 5	Amer. Con. Oilfields	9,600	83	85	80	82	— 1
7½	2¾	6¾	3½	N.P.	Amer. Maracaibo	1,800	4½	4¾	4½	4⅝	+ ⅛
2¾	1	4	2¼	$ 10	Argo Oil	300	3	3	3	3	+ ½
9¾	6¾	10¼	7⅜	10	Arkansas Nat. Gas	.....	.....	.....	.....	.....	.....
20½	15½	.....	.....	N.P.	Beacon Oil	.....	.....	.....	.....	.....	.....
40	20½	40⅜	32¾	N.P.	British American	.....	.....	.....	.....	.....	.....
28¼	15½	23⅞	16½	25c	Carib Syndicate(new)	2,600	17¾	18½	17½	18	+ ¼
26	15⅛	.....	.....		do ctfs. of deposit	.....	.....	.....	.....	.....	.....
58¾	40¼	71¼	54	$ 20	Cities Service	15,800	66¾	67⅜	66¼	67⅛	+ ⅛
95⅜	87	103½	94½	100	do pfd	1,600	100	100¾	100	100¾	+ ¾
8⅞	7¾	9⅝	8⅞	10	do pfd. B	400	9½	9½	9½	9½	0
29¼	22½	34⅝	28¼	10	do banker's shares	.....	.....	.....	.....	.....	.....
3½	1¼	2¾	1⅛	1	Colombia Syndicate	1,800	1⅛	1½	1¾	1⅜	0
9¾	6¾	8¾	6½	10	Consolidated Royal	.....	.....	.....	.....	.....	.....
14⅞	9½	17½	10	N.P.	Creole Syndicate	12,800	14⅛	14¼	13¼	13⅞	— ⅜
3	.50	3¼	.76	N.P.	Crown Central	600	2¼	2⅜	2	2	— ⅜
12	4	30½	8½	N.P.	Darby Petroleum	5,900	21⅞	24½	21¼	24½	+ 2⅜
11½	4	13⅜	7⅜	....	do trust ctfs	.....	.....	.....	.....	.....	.....
2½	.74	22	1	N.P.	Derby Oil & Refining	.....	.....	.....	.....	.....	.....
16¾	4	11¼	7½	N.P.	do pfd	100	11⅜	11⅜	11⅛	11⅛	0
3¾	1	2	1	N.P.	Gibson Oil	3,300	1⅜	1¼	1	1⅜	— ⅜
2	.40	.53	.15	N.P.	Gilliland ctfs	.....	.....	.....	.....	.....	.....
118	86¼	148½	101⅛	$ 25	Gulf Oil Corp	1,300	124½	132	122⅛	130⅞	+ 5⅞
2⅛	.80	7⅞	1	10	Intercontinent Pet	7,200	1⅜	1¼	1	1⅛	0
2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	100	1¾	1¾	1¾	1¾	0
10⅜	5⅛	9⅜	5½	N.P.	Leonard Oil & Dev	1,600	6⅝	6⅝	6½	6½	— ⅛
27½	20	32⅜	20	N.P.	Lion Oil & Refg	1,100	27½	28½	27½	28½	+ 1½
59⅝	37	57	48⅜	$ 25	Lone Star Gas	1,300	52	52½	52	52½	— ⅜
2⅞	.80	1⅞	.91	1	Magdalena Synd	6,900	1	1⅛	1	1	— ⅛
21½	20¼	22⅛	22⅛	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	36½	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
3	1⅛	40¼	40½	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	8	4¼	N.P.	Mexico-Ohio Oil	100	5⅞	5⅞	5⅞	5⅞	+ ⅜
1½	1	1½	.76	$ 1	Mountain & Gulf	100	81	81	81	81	0
29¼	22¾	28¾	22⅜	10	Mountain Producers	3,100	22¾	23	†22⅝	22¾	0
5⅛	4⅜	5⅜	4¾	5	New Bradford	100	4⅞	4⅞	4⅞	4⅞	+ ⅛
6¼	4	5½	4	10	New England Fuel	.....	.....	.....	.....	.....	.....
16	9¼	11⅜	7½	1	New Mex. & Ariz	500	8½	8½	8	8	— ½
13⅞	9	15⅜	11½	25	New York Oil	.....	.....	.....	.....	.....	.....
12¾	9⅛	13¼	10¾	N.P.	North Cent. Texas	1,300	12⅝	12¾	12¼	12½	— ⅜
23⅛	21¼	...	...	...	Okla. Nat. Gas ctfs.	.....	.....	.....	.....	.....	.....
9⅜	3¼	6	2½	N.P.	Pandem	1,800	2¾	2¾	2⅝	2⅝	0
12⅛	7	15¼	8½	N.P.	Panapec Oil	6,200	10½	10⅝	10¼	10⅝	+ ⅜
9	7⅛	15½	10⅝	$ 25	Paragon Refg	200	15½	*15½	15	15	0
.37	.25	9	4	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
13½	5⅛	7¾	5⅛	10	Pennok Oil	400	6	6	5⅛	5⅛	— ⅜
...	...	4½	3¼	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
24⅜	7	14½	8	25	Red Bank Oil	.....	.....	.....	.....	.....	.....
15½	3½	12⅝	4⅛	N.P.	Reiter-Foster	5,400	7¾	8	7¾	8	+ ⅛
28⅜	15	31½	22	$ 25	Richfield Oil pfd	200	23½	23½	23½	23½	0
7	4⅛	9¾	4⅝	N.P.	Ryan Consolidated	3,700	6½	6½	6	6	— ¼
8	5¼	7¾	5¾	$ 10	Salt Creek Cons	300	6¼	6¼	6¼	6¼	+ ½
35⅛	27¼	35	27	10	Salt Creek Prod	3,700	27	28½	27	28⅜	+ ⅜
7	1¼	3½	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
26⅛	17	22⅞	13	10	Tidal Osage	1,100	17⅜	18½	17⅜	18½	+ ⅜
23¾	15	21¾	13⅛	10	do non-voting	1,600	17⅜	18⅜	17⅜	18⅜	+ ¾
92	63½	87	82	100	Transcontinental pfd	.....	.....	.....	.....	.....	.....
23¼	7	50	18	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
7⅜	4⅛	6⅜	4⅞	5	Venezuelan Petrol	600	5⅛	5⅛	5⅛	5⅛	+ ⅛
32¾	19½	25	18⅞	N.P.	Wilcox Oil & Gas	200	19½	19½	19½	19½	— ½
8	4¾	8¼	5¾	$ 1	Woodley Petroleum	1,200	6½	6½	6⅛	6⅛	— ⅜
6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	300	5⅛	5⅛	5⅛	5⅛	0

*New High †New Low xEx Dividend

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Boggs and Matthews Union Oil Vice Presidents

LOS ANGELES, July 7

R. D. MATTHEWS and Paul N. Boggs were made vice presidents of the Union Oil Co. at a meeting of the board of directors June 25. The company now has five vice presidents. E. W. Clark, executive vice president, W. W. Orcutt and L. P. St. Clair complete the official family under the leadership of W. L. Stewart, as president, with R. J. Keown, treasurer, and John McPeak, secretary.

The election of Matthews and Boggs as vice presidents rounds out a new administration plan which Mr. Stewart deemed advisable in order to handle the rapidly increasing responsibilities due to the company's growth within the United States and its expansion abroad. The new plan of administration divides the operations into three divisions:

Production operations, including geological, lands and leasing, drilling and production, pipe lines and storage, crude oil purchases and production publicity, under the direct responsibility of Vice President L. P. St. Clair.

Manufacturing operations, including refining and storage, research, gas operations and purchases of refined and semi-refined products, are under Vice President R. D. Matthews.

Distribution operations, covering all sales activities, sales organization, facilities and storage, marine and railroad transportation, advertising and sales publicity, under the direct responsibility and authority of Vice President Paul N. Boggs.

R. D. MATTHEWS

PAUL N. BOGGS

Both of the new vice presidents have been affiliated with the petroleum and allied industries for many years. Mr. Matthews joined the Union in 1914 as comptroller, being elected shortly thereafter to the executive committee and the board of directors. During recent years his duties have been extended into the manufacturing operations as well as the financial end of the company's business.

Mr. Boggs came to the Union Oil Co. in 1924. from the Union Tool Co., then a Union Oil subsidiary. His identification with the oil industry dates back to 1902 when he became affiliated with the W. T. McFie Supply Co. Later he served as vice president and general manager of the J. F. Lucey Co., manager of the Fulton & Adeline Consolidated Road Oil Co., and then as president of the Union Tool and vice president and general manager of the National Supply Co.

At the present time the company has a daily production of 40,000 barrels with about 16,000 barrels per day shut in. It has 635 producing wells. Field holdings total 1,106,246 acres distributed over California, Colorado, Wyoming, Mexico, Venezuela and Colombia.

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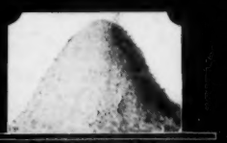

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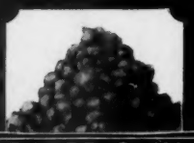

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